

The KEYSTONE

The ORGAN of the JEWELRY & OPTICAL TRADES



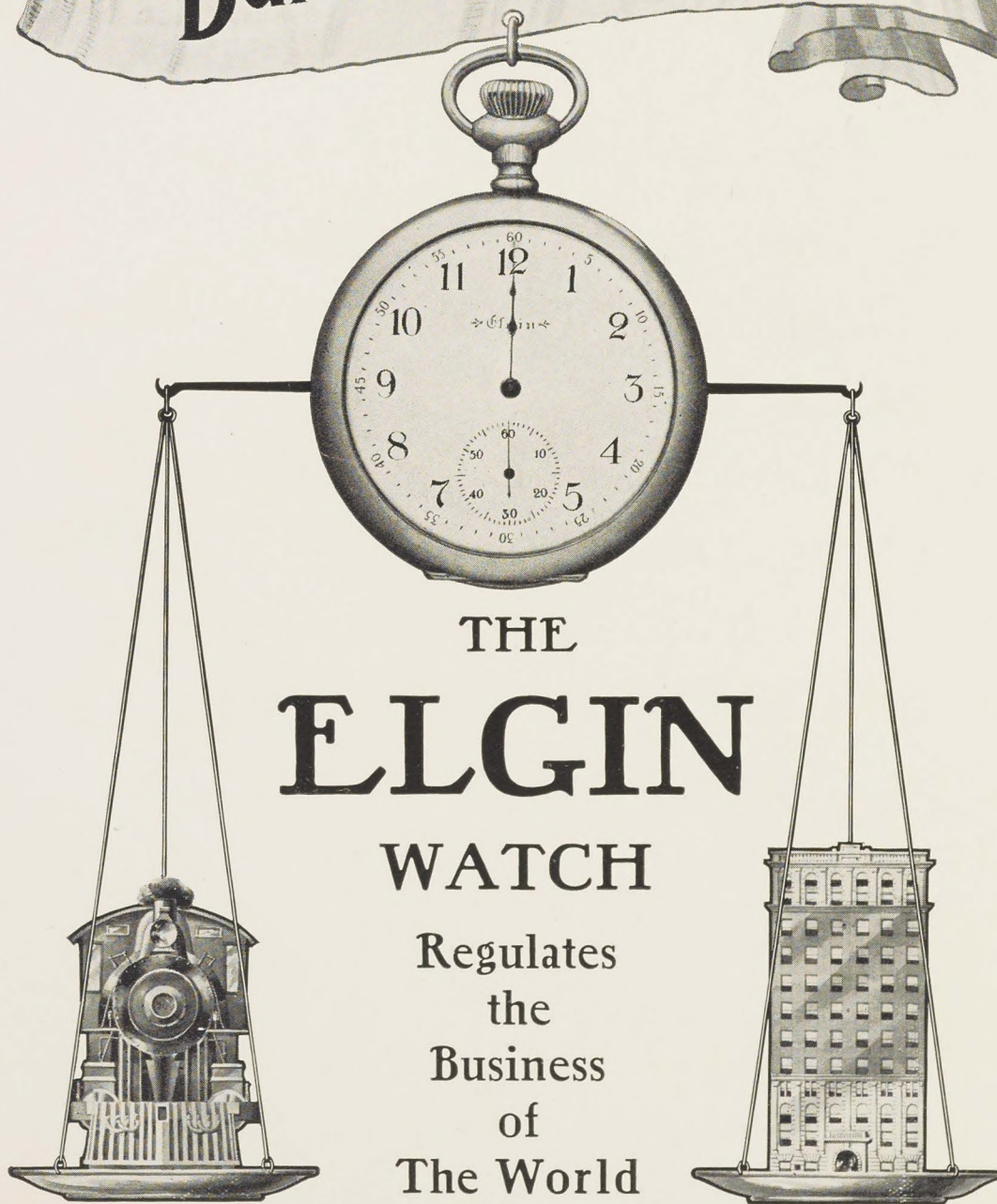
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BY B. THORPE PUBLISHER
19TH & BROWN STS PHILA.

Vol. 25

May, 1904

No. 5

The Balance of Business



Indispensable to modern life, the Elgin Watch is ever in increasing demand,—and the balance of business goes to the store that carries a full stock of Elgin Watches.

See Jobbers' list for prices or write the Company.

Every dealer is invited to send for the Elgin Art Booklet, "Timemakers and Timekeepers," illustrating the history and development of the watch.

ELGIN NATIONAL WATCH COMPANY

Factories, ELGIN, Illinois, U. S. A.
General Offices, 131 Wabash Ave., Chicago.

NEW YORK OFFICE, 11 John Street.
SAN FRANCISCO OFFICE, 206 Kearny St.

F&B.



Theodore W. Foster & Bro. Co.

Established 1873.

Makers of High-Grade Rolled-Gold Plated, Seamless

Vest and Dickens Chains,
Fob Chains and Lorgnette Chains,
Locketts and Charms,
Neck Chains and Bracelets,
Ribbon Chains and Hair Chain Mountings,
Link Buttons and Scarf Pins,
Waist Sets and Belt Pins,
Bead Necks and Crosses,
Brooches and Earrings.

STERLING SILVER

Toilet Sets and Single Pieces,
Manicure Sets and Single Pieces,
Desk Sets, Shaving Sets, Sewing Sets,
Smoking Sets,
And all kinds of Useful Silver Novelties.

100 RICHMOND ST., PROVIDENCE, R. I.

BRANCH OFFICES. SAMPLES ONLY.

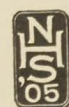
13 Maiden Lane, New York.

103 State St., Chicago.

350 King St., Kingston, Ontario.



YOU
CAN SECURE THAT
CLASS PIN ORDER
BY SHOWING
OUR DESIGNS AND SAMPLES.
WE ARE HEADQUARTERS.
WRITE TO EITHER FACTORY.
WENDELL & COMPANY,
93, 95 AND 97 WILLIAM ST.
NEW YORK.
57 WASHINGTON ST.
CHICAGO.



We are a little better fixed
to supply your needs in

R. R. Watches

than the next-best Watch House,
and we should like to have an
opportunity to demonstrate our
facilities in this direction. Try us!

The Non-Retailing Company, Jobbers in *Watches and Chains, Lancaster, Pa.*



Our Imports of DIAMONDS are direct from the cutters at Amsterdam and we can therefore offer you SUBSTANTIAL INDUCEMENTS.

REMOVAL NOTICE:

We are now located at our new offices, 12 Maiden Lane, "one flight up," directly over the store occupied by us for many years.

The change gives us more commodious offices, better light and such facilities as are required to insure prompt and satisfactory service to our customers.

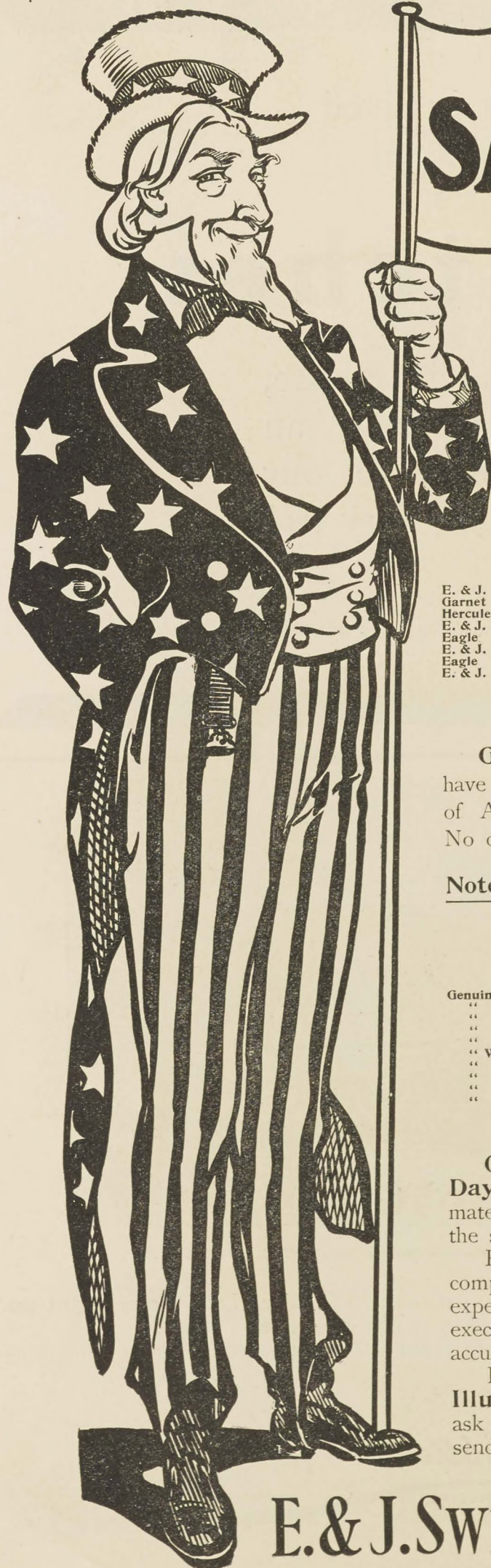
Jewelers visiting New York are cordially invited to call.

Orders either direct or through our travelers are solicited.

Selection packages sent to responsible jewelers. Our goods are insured while in transit.

Lissauer & Company
P. O. Box 1625. Established 1866.

12
Maiden Lane,
(one flight up),
NEW YORK.



SATISFACTION

results only from using reliable material. Every watchmaker in Uncle Sam's country, and his customers, can have satisfaction. We sell goods of known quality.

We have sold these Staffs, Jewels and Mainsprings for many years and the quality is always the same—uniformly good

OUR PRICES:

| | Per Doz. |
|---|----------|
| E. & J. S. Mainsprings (none better made) | \$1.25 |
| Garnet " coiled, 1 dozen in paper | 1.00 |
| Hercules " a fine low-priced Spring | .75 |
| E. & J. S. American-Made C. & F. Jewels | 1.50 |
| Eagle " " " | .75 |
| E. & J. S. " " Balance Staffs | 1.00 |
| Eagle " " " | .75 |
| E. & J. S. Roller Jewels | .25 |

6% discount for cash.

Genuine American Material. We have these materials for all makes and sizes of American Watches; stock is complete. No delays—no blunders.

Note Reduction in Prices of Genuine Elgin and Waltham Staffs and Jewels.

| | Per Doz. |
|---|----------|
| Genuine Elgin Balance Staffs for 7 Jewel Grade, all sizes | \$2.00 |
| " " " " 15 " " " | 3.00 |
| " " " " 17 and 21 Jewel Grade, all sizes | 4.00 |
| " " C. & F. Jewels 7 to 15 " " " | 2.00 |
| " " Roller " " " | .60 |
| " Waltham Balance Staffs for 7 Jewel Grade | 2.00 |
| " " " " 15 " " " | 3.00 |
| " " " " 17 " " " | 4.00 |
| " " " " 21 " " " | 5.00 |
| " " C. & F. Jewels, 7 to 15 Jewel Grade | 2.00 |

All prices less 6% for cash.

Orders Filled Same Day Received. We fill material orders invariably on the same day they reach us.

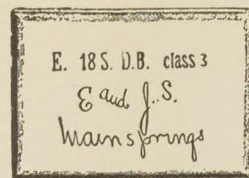
Pieces are matched by competent men, whose long experience enables them to execute orders with the utmost accuracy.

If you do not have our **Illustrated Catalogue**, ask for a copy, which we will send you without charge.

E. & J. Swigart, Cincinnati, Ohio.



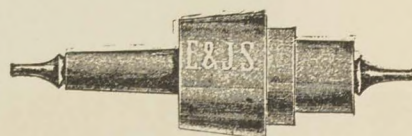
E. & J. S. Balance Jewels.



E. & J. S. Mainsprings.



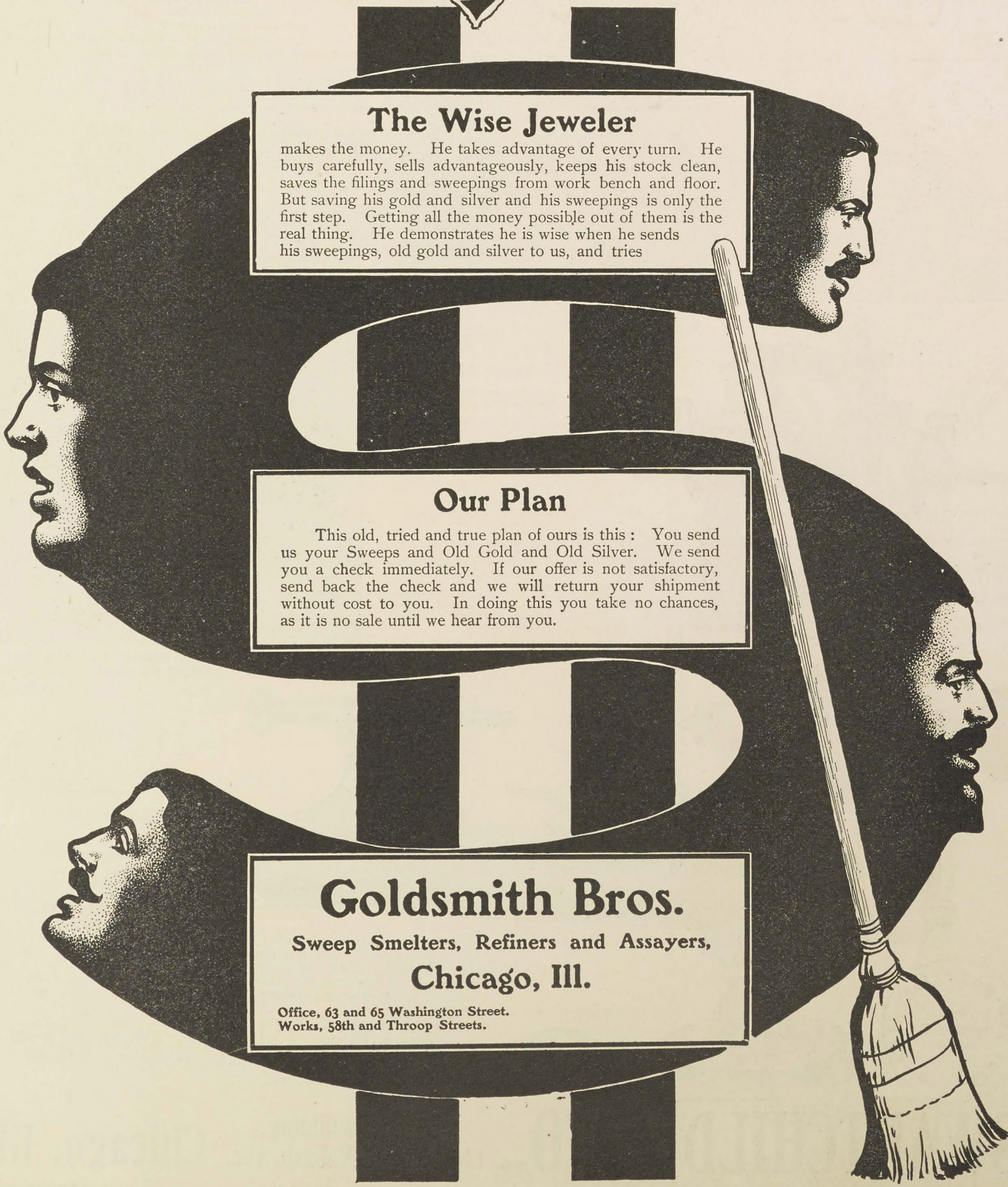
Hercules Mainsprings.



E. & J. S. Balance Staffs.



Money Talks



The Wise Jeweler

makes the money. He takes advantage of every turn. He buys carefully, sells advantageously, keeps his stock clean, saves the filings and sweepings from work bench and floor. But saving his gold and silver and his sweepings is only the first step. Getting all the money possible out of them is the real thing. He demonstrates he is wise when he sends his sweepings, old gold and silver to us, and tries

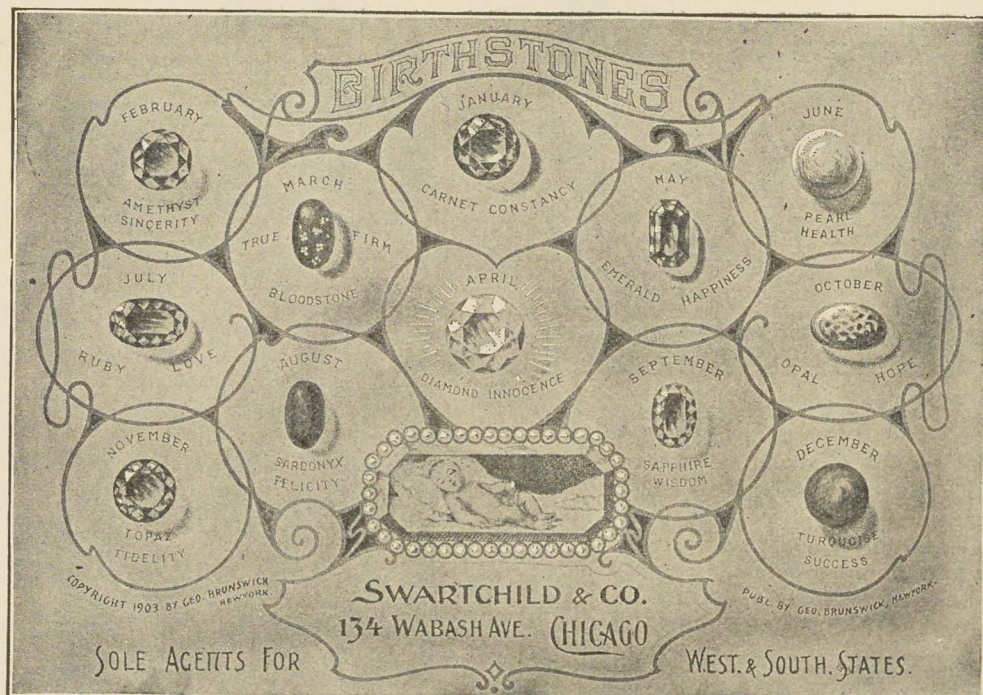
Our Plan

This old, tried and true plan of ours is this: You send us your Sweeps and Old Gold and Old Silver. We send you a check immediately. If our offer is not satisfactory, send back the check and we will return your shipment without cost to you. In doing this you take no chances, as it is no sale until we hear from you.

Goldsmith Bros.

Sweep Smelters, Refiners and Assayers,
Chicago, Ill.

Office, 63 and 65 Washington Street.
Works, 58th and Throop Streets.



The New Century Business Card.

As a business man it must be evident to you that trade can be stimulated by intelligent advertising. What you want to know is: **How and Where** can I get something which will effect material results?

The New Century Business Card gives the answer. Treated in the brightest style of **artistic color work with stones embossed in high relief**, imprinted with your name and address, and judiciously distributed, these display cards are bound to attract and fascinate the eye.

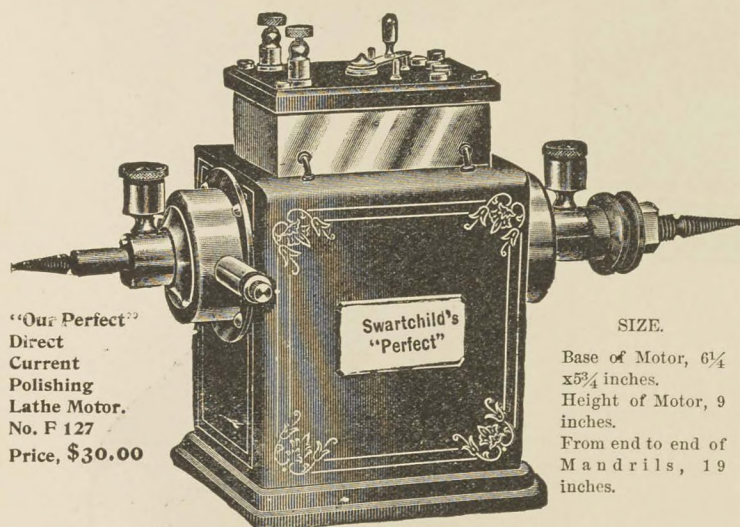
Pronounced by leading jewelers to be the greatest achievement in representing precious stones.

| | |
|---|---------|
| Price of 1000 cards with name and address printed | \$12.00 |
| Price of 500 " " " " " " | 6.50 |
| Price of 100 " without " " " " | 1.25 |

Not less than 500 cards printed with name and address.

Two large Art Prints, 14x11 inches, of artistic color work with stones embossed in high relief for show window or store display, free with every order for 1000 cards. One of the above free with every order for 500 cards.

A SAMPLE CARD FURNISHED FREE UPON APPLICATION.



"Our Perfect"
Direct
Current
Polishing
Lathe Motor.
No. F 127
Price, \$30.00

SIZE.

Base of Motor, 6 1/4 x 5 1/4 inches.
Height of Motor, 9 inches.
From end to end of Mandrils, 19 inches.

"Our Perfect" Electric Polishing Lathe Motors,

For Both DIRECT and ALTERNATING Currents.

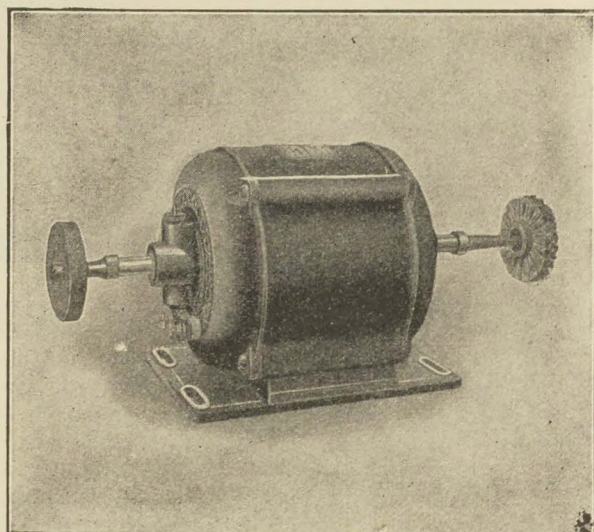
These motors are almost noiseless in operation, and entirely enclosed, thus preventing injury from dust and grit.

They are powerful and speedy, and are run by simple connection with an ordinary incandescent lamp socket. Are sufficiently heavy that it is unnecessary to fasten same.

Cost of running is little; current used is that of an ordinary lamp.

Further information cheerfully furnished upon application.

In ordering, state **voltage**, for **which current**, and if alternating current, how many alternations.

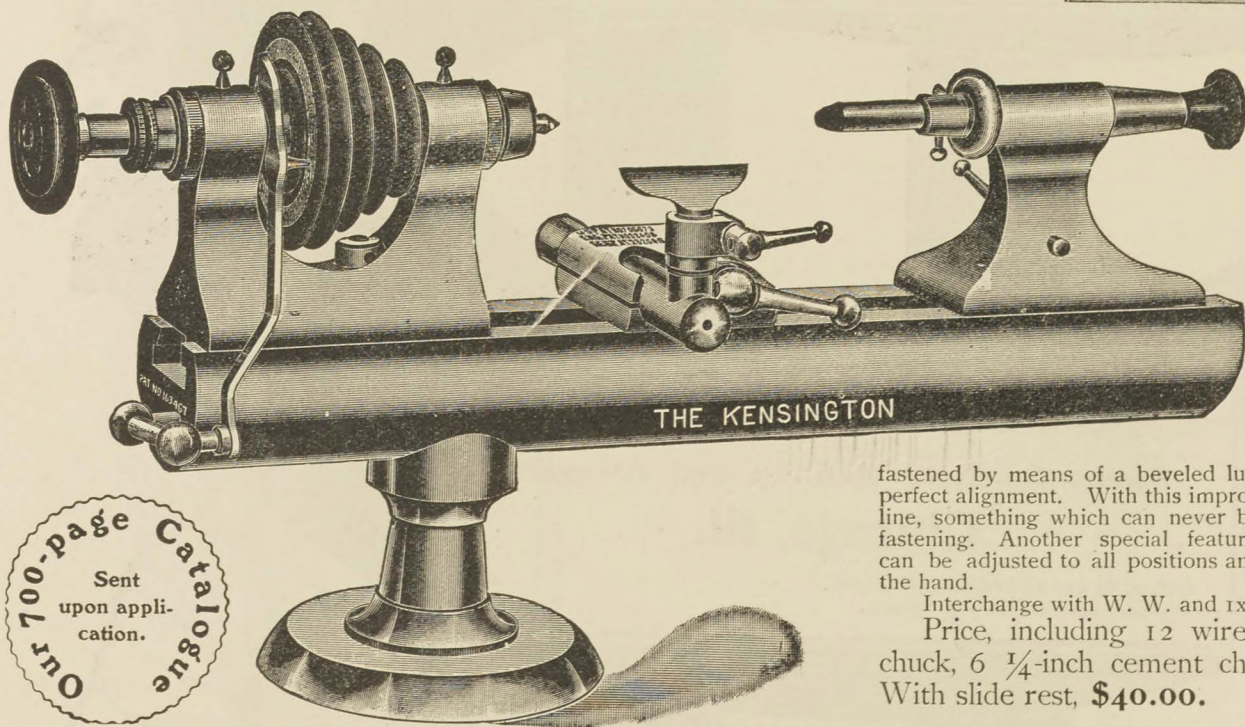


"OUR PERFECT" ALTERNATING CURRENT POLISHING LATHE MOTOR.

No. F 128. Price, \$30.00

SIZE.

Base of Motor, 7 3/4 x 5 1/4 inches.
Height of Motor, 6 3/4 inches.
From end to end of Mandrils, 19 inches.



Our 700-page Catalogue
Sent upon application.

The Kensington is equipped with all the latest patented improvements which must be seen and tested to be appreciated. Particular attention is called to the style of fastening of the Rest, Head and Tailstock, to the bed of lathe. These attachments are fastened by means of a beveled lug which will always bring these parts in perfect alignment. With this improvement the lathe must remain in perfect line, something which can never be maintained with the old-style shoe fastening. Another special feature is the *Sliding Top-over Rest*, which can be adjusted to all positions and can be tightened with one motion of the hand.

Interchange with W. W. and 1x2.

Price, including 12 wire chucks, 1 taper and 1 screw chuck, 6 1/4-inch cement chucks and belting, \$25.00 net. With slide rest, \$40.00.

SWARTCHILD & CO.,

Jewelers' Building,
134-136-138 Wabash Ave., Chicago, Ill.

The Largest and only Exclusive Watchmakers', Jewelers' and Engravers' Supply House in the United States.

Established 1870.

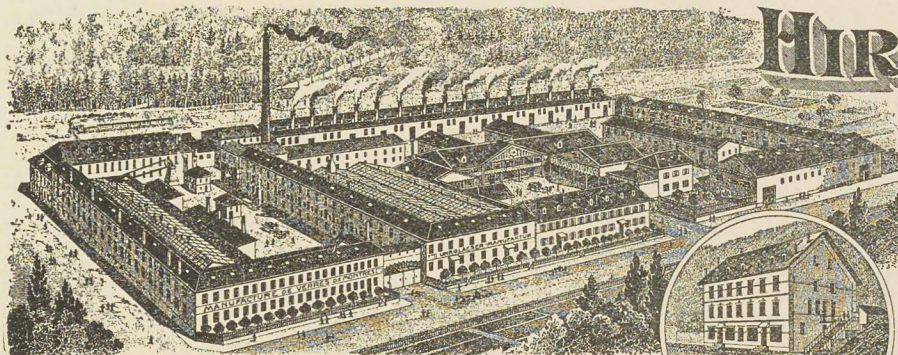
BEWARE OF COUNTERFEITS!

687

Glasfabrik Dreibrunnen

HIRSH & HAMMEL

vormals
ACHILLE PORTAL.



GEGRÜNDET 1848.

Telegramm-Adresse. HAMMEL, VALLERYSTHAL-DREIBRUNNEN



GIRO-CONTO
Reichsbank-Nebenstelle
ZABERN/EL

UHREN-, PENDULEN-
& BAROMETERGLÄSER.
Medaillons u. Compassgläser.
BRILLEN-
u. OPTISCHE GLÄSER
GLASWAAREN
für
Uhrmacher.

Alle Arten
FACETTENGLÄSER,
runde, ovale, eckige,
flache und bombirte
aus
CRYSTALL- u. TAFELGLAS.

Bahn-Post- u. Telegraphenstation
VALLERYSTHAL-DREIBRUNNEN.

Dreibrunnen, den
bei Saarburg in Lothringen.

December 24, 1903.

To the Trade :

Information has reached us that several watch material jobbers are offering for sale, watch glasses, which, notwithstanding the fact that the labels do not bear the mark V. T. F. (as per above fac-simile), are represented as glasses of our manufacture.

We herewith caution the American public against this statement of facts and further beg to say that all of our watch-glass product is labeled and EACH LABEL BEARS THE MARK V. T. F. in both the obverse and reverse sides; that the tissue papers in which the glasses are wrapped are all marked with the size of the glasses, together with the letters V. T. F. and any other glass sold as V. T. F. without our trade-mark is a base and inferior imitation.

Very truly yours,

Glasfabrik Dreibrunnen,

HIRSH & HAMMEL.

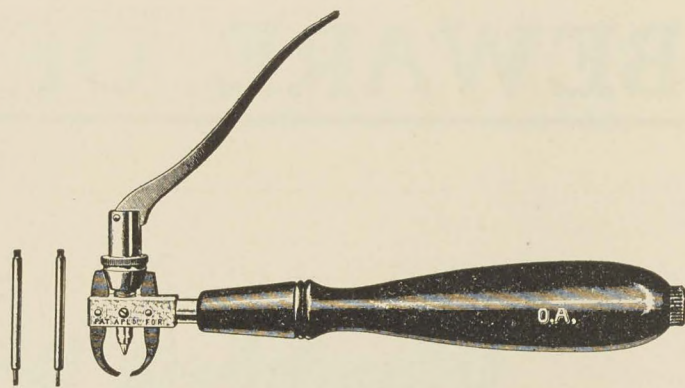
To the Jobbing Trade



Caution to Watchmakers.

Our "U. S." MAINSPRINGS are acknowledged by watchmakers throughout the United States to be the best springs in point of finish and quality, for the money, ever placed on the market. We desire to maintain this reputation for the "U. S." springs, and would therefore call your attention to the fact that an imitation spring resembling the "U. S." has been offered for sale, and in some instances, we are informed, has even been placed in "U. S." boxes. To guard against this deception we would suggest that you exercise the utmost caution in making your purchases, and insist that the trademark "U. S." appear engraved upon each spring.

ASK YOUR JOBBER FOR THEM.



New Patent Roller and Hand Remover.

This combination tool will remove all sizes of single and double rollers from balance staffs with safety and certainty, and will remove all sizes of watch hands without injury to dials. Expert watchmakers have pronounced it the most perfect tool of its kind in the market.

Instructions.—The jaws can be adjusted for small or large opening, just by turning thumb nut. It has two extra plungers for hand removing and one extra plunger for roller remover, which are kept inside of handle when not in use; the handle has a thumb screw in the back with a steel sleeve to fit over plungers. When changing plungers, open the jaws, hold the lever down, then unscrew plunger and put another in for hand removing, and keep the others in handle.



PERFECTION HAT-PIN STEM.

PATENT APPLIED FOR

This Patent Solderless Hat-Pin Stem is the most perfect and best in the market, the construction of it being such that it will neither slip or break. A trial will convince you of these facts. To be had at all the leading Jobbing Houses.

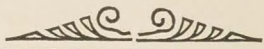
HENRY ZIMMERN & CO., INC.

Importers of Watch Material,

60 John Street, NEW YORK.

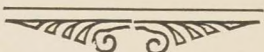
Solid Nickel and White Metal Chains a Specialty.

20th Century Food For Thought



1—We size our Rings and replace all stones except diamonds, whether lost or broken, for two years after you have sold them.

2—We exchange any of our Rings for any styles of gents' or ladies' stone-set Rings at any time.



is the privilege, which our customers enjoy, of exchanging any of our Rings for new styles at any time. WRITE FOR A MEMORANDUM PACKAGE.

We carry 1000 different styles of 10 K. Solid Gold Stone-Set Rings. We pay express charges both ways and give you one-half October 1st, one-half January 1st terms on all goods selected.

The Queen City Ring Mfg. Co.

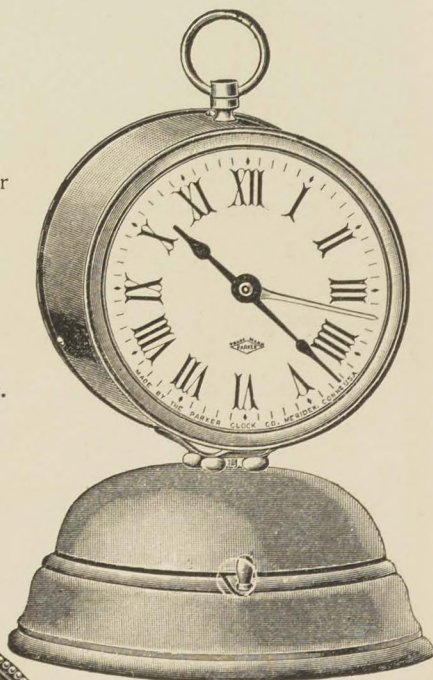
Ellicott and
South Division Streets,

Buffalo, N. Y.

SPECIAL ANNOUNCEMENT TO THE TRADE.

We sell an assortment of 12 Parker Clocks at prices stated below:

| | | |
|-------------------|--------|--------------------|
| 1 Parker No. 43 @ | \$.75 | \$.75 |
| 1 " " 61 | 1.00 | 1.00 |
| 1 " " 63 | .90 | .90 |
| 1 " " 98 | 1.25 | 1.25 |
| 1 " " 101 | .70 | .70 |
| 1 " " 102 | .75 | .75 |
| 2 " " 103 | .60 | 1.20 |
| 2 " " 105 | .58 | 1.16 |
| 2 " " 106 | .55½ | 1.11 |
| | | \$8.82 total, net. |



PARKER No. 61.

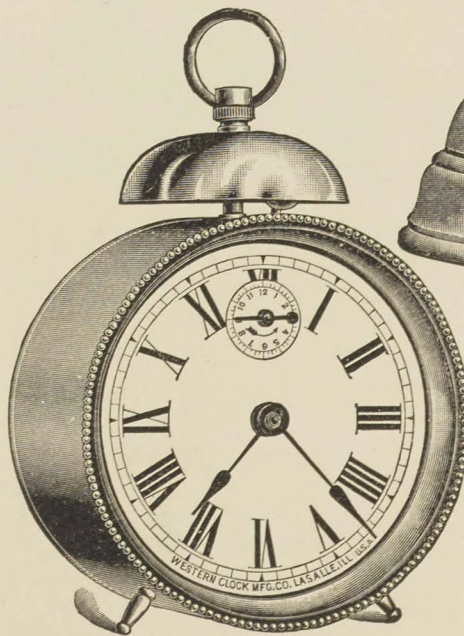
We also sell 4 in. 30 hour Time Alarm America for 50c. net, in case lots.

Aisenstein & Woronock,

Jobbers in

DIAMONDS, WATCHES
AND JEWELRY,

22 Eldridge St., New York.



AMERICA No. 121.

1904

689

No Well-Informed Jeweler

Doubts the desirability of

as a prominent part of his stock. They are always of standard quality and desirable styles at a price that affords the Retailer a good profit.

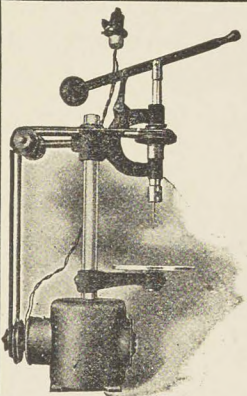
Don't wait for our travelers but order, for selection or otherwise, direct from



M. B. BRYANT & CO.,

7 Maiden Lane, NEW YORK.

The "Bryant" Rings.



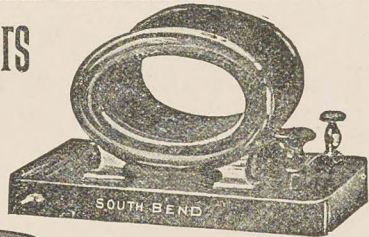
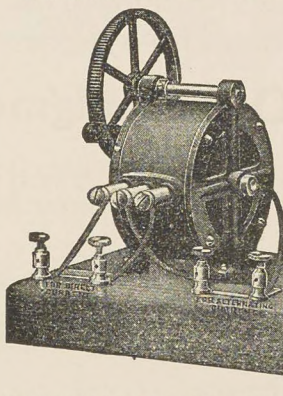
Portable 10-in. Electric Sensitive Bench Drill.

For 110 or 220 volt direct current. Five speed changes—500, 750, 1000, 1350, 2000 R. P. M. Can be plugged direct into lamp socket. Drill capacity, 1/4-inch. Weight, 100 pounds. YOU NEED IT.

\$50. With Chuck Fitted, \$5.00 Extra.

Bartz, Wygant & Brown,
Motors and Generators. Hornellsville, New York.

"South Bend" Demagnetizers

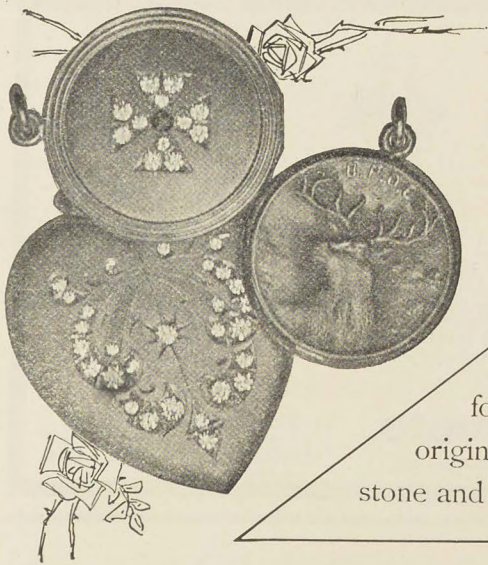


ORDER FROM
YOUR JOBBER.

PRICES:
For Direct Current, \$15.00
For Alternating " 5.00

Agents for England,
GRIMSHAW & BAXTER,
29 Goswell Road, London,
carry stock.

THE MILLER-KNOBLOCK ELECTRIC MFG. CO., South Bend, Ind.



Ask your Jobber
for our beautiful new
original designs of white
stone and fancy colored lockets.

WIGHTMAN & HOUGH Co.

Established 48 Years.

PROVIDENCE, R. I.

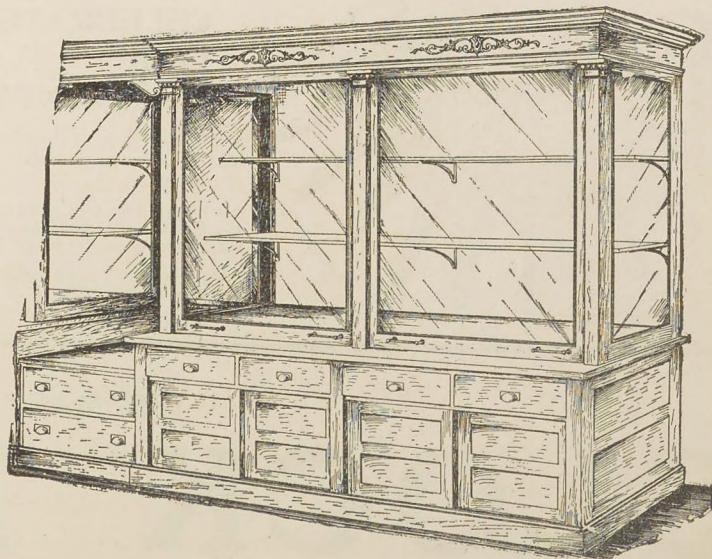
MANUFACTURERS OF EVERY STYLE OF

LOCKETS

Send for Illustrated Booklet.

F. C. JORGESON & CO.

208 & 210 W. Lake St., Chicago,
MANUFACTURERS.



Colonial Wall Case No. 123.

8 ft. long, 8 ft. high outside, upper part 18 in. deep inside.

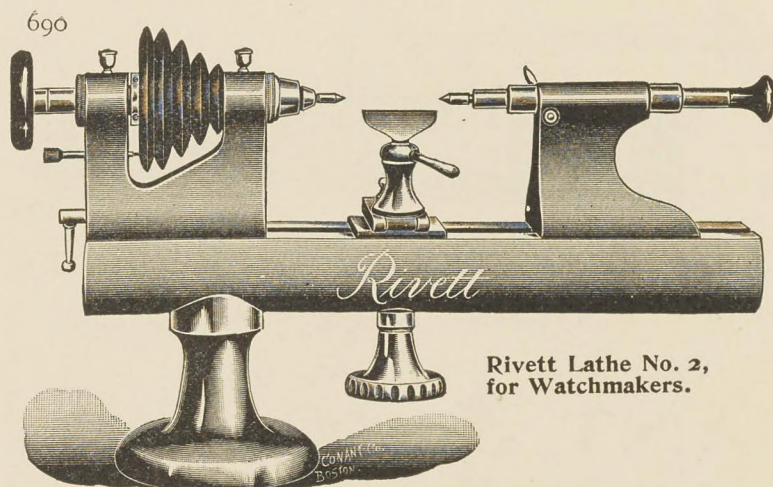
Made of oak, golden oak finish, rubbed down by hand, doors slide up, glazed with heavy double-thick glass, inside of case lined with dark felt, upper part made in K. D. to save freight.

This case can be made continuous by adding plate-glass mirror section between, thereby securing any length desired.

This is a high-grade Case sold at a very low price as an ad.

Write for illustrated circular.

"THE BEST OF EVERYTHING."



Rivett Lathes

Made in 2 Styles.

The Rivett Lathe, steel bed as usual.
 “ “ “ with bed of Cast Iron, same as other makers use, at a lower price.

Ask Your Dealer for it.

SEND FOR CATALOG.

More “Rivett” Lathes have been sold through the dull time than ever before. The increase has been constant and regular from the beginning, due to the incessant care of its manufacture. When you get the “Rivett” Lathe you get more for your money than in any other lathe in the world.

Use Your Own Judgment. Don't be deceived.

Some dealers will guarantee anything, the cheapest as well as the best, and in the same way; such guarantees are worthless. You can save money by buying the “Rivett” Lathe with a bed of cast iron, the same as other makers use.

Faneuil Watch Tool Co.

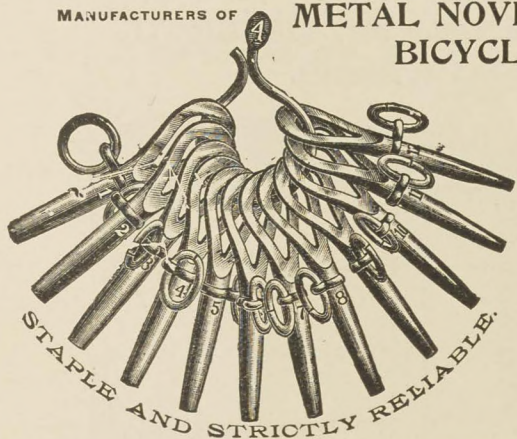
Brighton,

Boston, Mass., U.S.A.

A. N. CLARK & SON, Plainville, Conn.

MANUFACTURERS OF

**METAL NOVELTIES,
BICYCLE SUNDRIES and
CLARK'S
CELEBRATED
LOOP
WATCH KEYS.**



Order Keys through your jobber, who will furnish them at our price.

J. H. Walbridge & Co., 337 Broadway, New York City, agents for Tweezers, Manicures, Key Rings, etc.

Stevens & Co., 99 Chambers St., New York, agents for Bicycle Sundries.



ELKS' BUTTON.
(Front.) Pat'd.
Sterling Silver and Gold-Plated.



ELKS' BUTTON.
(Side.) Pat'd.



TIGER CLAW RING.
Solid Gold. Pat'd.



TIGER CLAW RING.
Side View.

I do all kinds of work for the trade. Workmanship the very best, and satisfaction guaranteed.



MONKEY RING.
Solid Silver, Oxidized.

Ikko Matsumoto,
Rooms 1, 2 and 3, 17½ S. Meridian St.

**Manufacturing Jeweler,
Indianapolis, Ind.**

WE MAKE A SPECIALTY OF

CLOCK MATERIAL

and of WHEEL CUTTING and MAKING PARTS TO ORDER.

MAIL ORDERS Filled Promptly.

We keep in stock

English

German

Seth Thomas

Hall Clock

Movements

G. S. LOVELL CLOCK CO.

MANUFACTURERS' AGENTS,

18 South Tenth Street, Philadelphia.

MR. RETAILER.

We again present a few new ideas in Buttons which we claim are the *best made goods* for the *least money* and **BEST SELLERS** of their class made by the best emblem goods house in the United States of America. Your jobber has them. If he has not, then write us for selection.

SOLID GOLD ONLY, ENAMELED AND ENGRAVED.



A full line of ELK, EAGLE and MASONIC JEWELRY always on hand for your selection.

THE GUSTAVE FOX CO.

Makers of Pat. B. P. O. E. and Eagle Jewelry. 14-16 E. Fourth St., Cincinnati, Ohio.

A PRACTICAL AND USEFUL INVENTION FOR THE WATCHMAKER

READ THE FOLLOWING TESTIMONIALS OF ITS WORTH AND USEFULNESS.

Mr. CHARLES MARSH, Elgin Ill. Chicago, March 19, 1904.
Dear Sir:—We are in receipt of your self-adjusting movement holder and after examining it very thoroughly we believe that it is the best tool for the purpose that has been called to our attention. The solidity of the rings on the base and the manner of positioning the support to the center arbor and holding it firmly in place while the hands are pressed on, would seem to make it a very desirable tool.

We would take pleasure in recommending it wherever we hear of such a tool being needed. Very truly yours,

ELGIN NATIONAL WATCH CO.
G. V. Dickinson, General Agent.

Mr. CHAS. MARSH, Elgin, Ill.

Dear Sir:—Your "Self-Adjusting Movement Holder" duly received and must say that I consider same one of the most practical and useful inventions in these days of 17-jewel watches so far introduced.

This acquisition to the "Watchmaker's Bench" would seem almost indispensable, and will no doubt become very popular among the craft. Most respectfully yours,

FRANK J. REAVES, Superintendent Rockford Watch Co., Ltd.

TO WATCHMAKERS:—

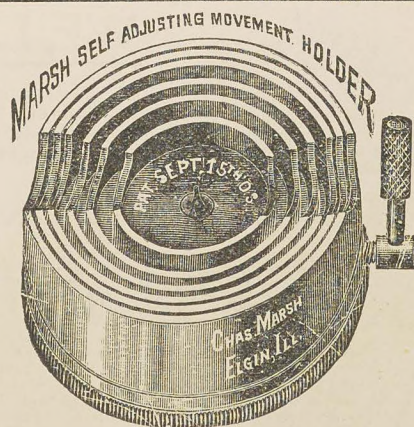
I wish to say, in regard to the "Marsh Adjustable Movement Holder," manufactured by Chas. Marsh, of Elgin, Ill., that I think it the finest tool for the purpose for which it is made on the market. Any watchmaker understands the difficulty of fitting hands on a 17-jewel watch. With this tool a watch jeweled in the center is as easy to fit hands on as a 7-jeweled movement. I gladly recommend it to all practical watchmakers. Respectfully,

Chicago, Sept. 18, 1903.

FRANK F. WINDOM.

Ten years with Charles E. Graves & Co., Chicago, Ill.

Rockford, Ill., January, 14, 1904.



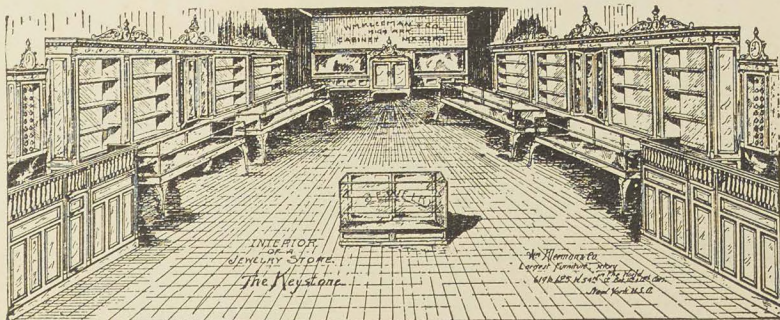
MARSH SELF-ADJUSTING MOVEMENT HOLDER.

Protects the center jewel from being broken or pushed out of setting while fitting on cannon pinion or hands. The plunger adjusts itself to center staff pivot, as shown in cut; by turning lever locks plunger firm, making it impossible to break or push center jewel out of setting. Any watchmaker can use this movement holder, as it is simple in construction, practical and durable. The following size movements can be adjusted to this holder: 18, 16, 12, 6, 0 and 10-0. Price, \$2.75, less the usual Cash Discount. Order this Tool from

SWARTCHILD & COMPANY, Wholesalers in Everything New in Tools and Materials, 134-138 Wabash Avenue, CHICAGO.

RELIABILITY—THAT'S THE POINT

when it comes to ordering JEWELRY STORE FIXTURES.



For 43 years WM. KLEEMAN & CO. have held the record for

High Art Jewelers' Store Fixtures Made to Order,

from plans and specifications which they prepare through correspondence or personal interviews with their experienced traveling representatives.

No regular HAND-ME-DOWN STOCK, MODELS OR DESIGNS.

Every piece of Store Furniture to suit the demand of location, the business expected to be gained and THE CUSTOMER'S POCKETBOOK.

YOU PAY NO MORE for what you need and want and ought to get than you used to pay for ready-made fixtures, and the kind of wood or glass and color of finish is to your individual taste.

THAT'S THE KIND OF CABINET WORK WE LEARNED HOW TO MAKE.

Do you need us? If you need information, our draughtsmen are at your service. No charge for plans, designs or suggestions.

Delivery guaranteed within the time it takes the sluggish, old-time dealer to pack his stock of goods, and at REASONABLE COMPETITIVE PRICES.

WRITE US; WE'LL TELL YOU ALL ABOUT IT.

WM. KLEEMAN & CO., 54th to 55th Streets, 11th to 12th Avenues, NEW YORK.

For 43 years Largest Makers of High-Grade Jewelers' Store Fixtures, Wholesale Interiors and Offices in the World.

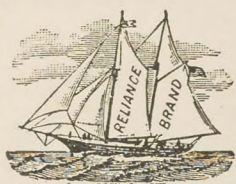
Try us on your next lot of Old Gold and Silver—you are certain to be pleased. We are old-fashioned in some ways; as (for instance) in employing the principles of common honesty and good faith. But in other ways we are the-very-newest fashioned; as in our metallurgical methods in Refining and Assaying. We have the model up-to-date plant, and the most skillful operatives behind it. Try us!

T. B. HAGSTOZ CO., Ltd.,

Smelters, Assayers and Refiners,

709 Sansom St., Philadelphia.

(Works at Riverside, N. J.)

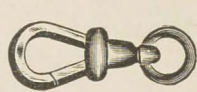


WE LEAD

with the Reliance Brand Balance Staffs and C. & F. Jewels Made for all sizes of American movements and guaranteed to fit.



BALANCE STAFFS, 60 cents per dozen net. C. & F. JEWELS, 50 cents per dozen net. Jewelers' Findings stamped Reliance Brand means that it is made of the best quality stock.



Send us a trial order and be convinced of our assertion. A complete stock of American and Swiss Materials always on hand. We also carry a complete line of Jewelry and Novelties made by the leading manufacturers. A complete stock of Optical Goods always on hand. Special attention given to mail orders. Orders filled from any catalogue.

KORONES BROS., Jobbers in Watches, Clocks, Jewelry, Watchmakers' Tools, Materials, Jewelers' Supplies, Engravers' Tools and Optical Goods, 38 Chrystie Street, NEW YORK.

Soldering Flux in Paste Form.

FOR DENTISTS AND JEWELERS.

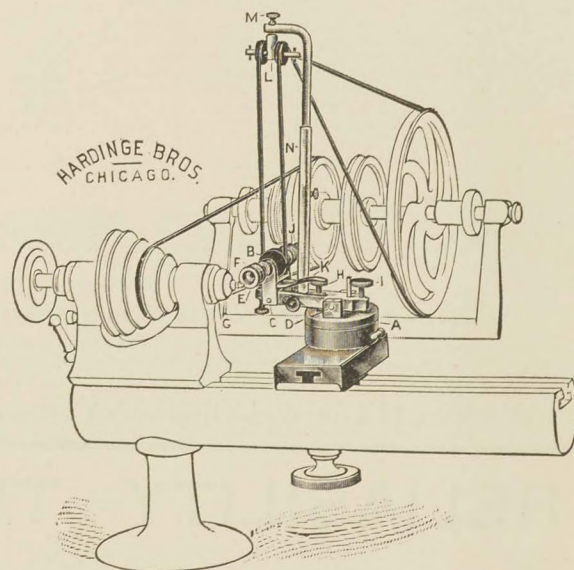
Apply with a Brush.



A very thin coating of **ELECTRIC CLEANSING FLUX PASTE** imparts a clean surface to the gold and causes solder to flow readily and uniformly. "Superior to any flux I have ever used," writes an expert goldworker. By mail, **25 cents**. Ask for Free Trial Package. Catalogue Bk of gas melting furnaces, blowpipes, etc., also sent if desired.

BUFFALO DENTAL MFG. CO.
BUFFALO, N. Y.

A NEW IDEA



Is often suggested by observation. Look at this **Pivot Polisher** in position for pivoting and we are convinced you will at once begin to think. We are satisfied we will hear of your decision. Price, fitted to any lathe, **\$30.00**. Write for further information and Catalog No. 5 to

Hardinge Bros., 1034 & 1036 Lincoln Ave., CHICAGO.



BEWARE
OF
IMITATIONS.

FULL NICKEL PLATE.

Lathe, including Taper and Screw Chuck,
6 Cement Chucks and belting
Extra Wire and Wheel Chucks

\$29.00
.75 each.

IN COMPARING PRICES WITH
OTHER LATHES, LEARN THE
DIFFERENCE IN SIZE,
QUALITY AND DETAILS
OF CONSTRUCTION.

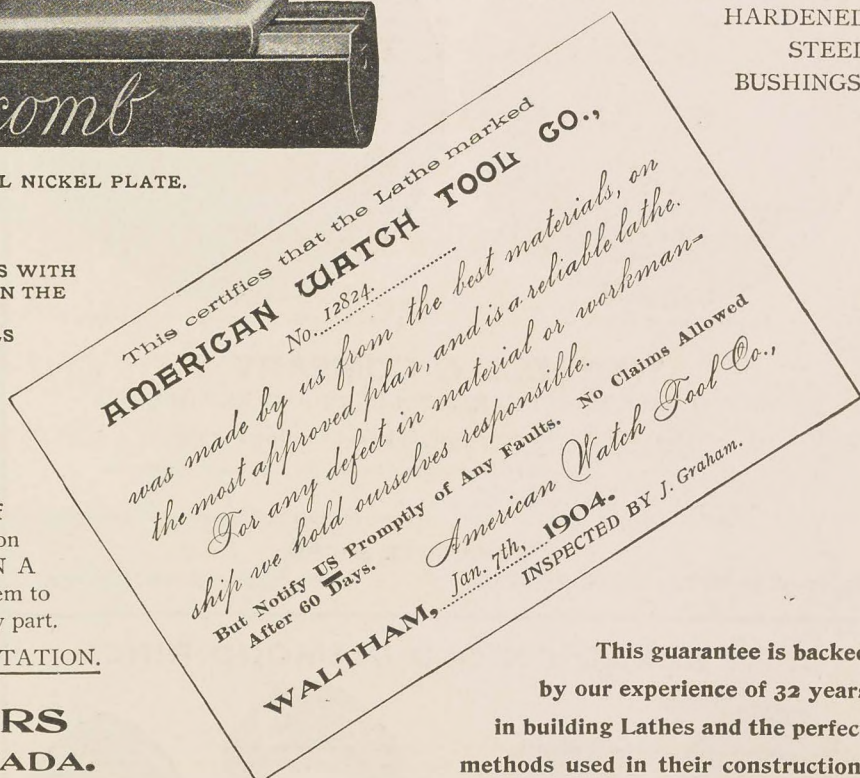
A CHUCK MAY LOOK ALL RIGHT, YET BE ALL WRONG.
Our Chucks are made of the very best steel and absolute concentricity of
cone, thread and hole is obtained by the most improved methods based upon
years of experience. We use no Dies for the threads, but CUT THEM ON A
LATHE; nor do we file and polish the cone, body or hole, but GRIND them to
a standard on special grinding machinery and guarantee perfection in every part.
WE CAUTION YOU AGAINST THE IMPERFECTIONS OF THE IMITATION.

FOR SALE BY ALL JOBBERS
IN THE UNITED STATES AND CANADA.

693
**PERFECT
CONSTRUCTION**

IN EVERY DETAIL.

HARD SPINDLES RUNNING IN
HARDENED
STEEL
BUSHINGS.



This guarantee is backed
by our experience of 32 years
in building Lathes and the perfect
methods used in their construction.

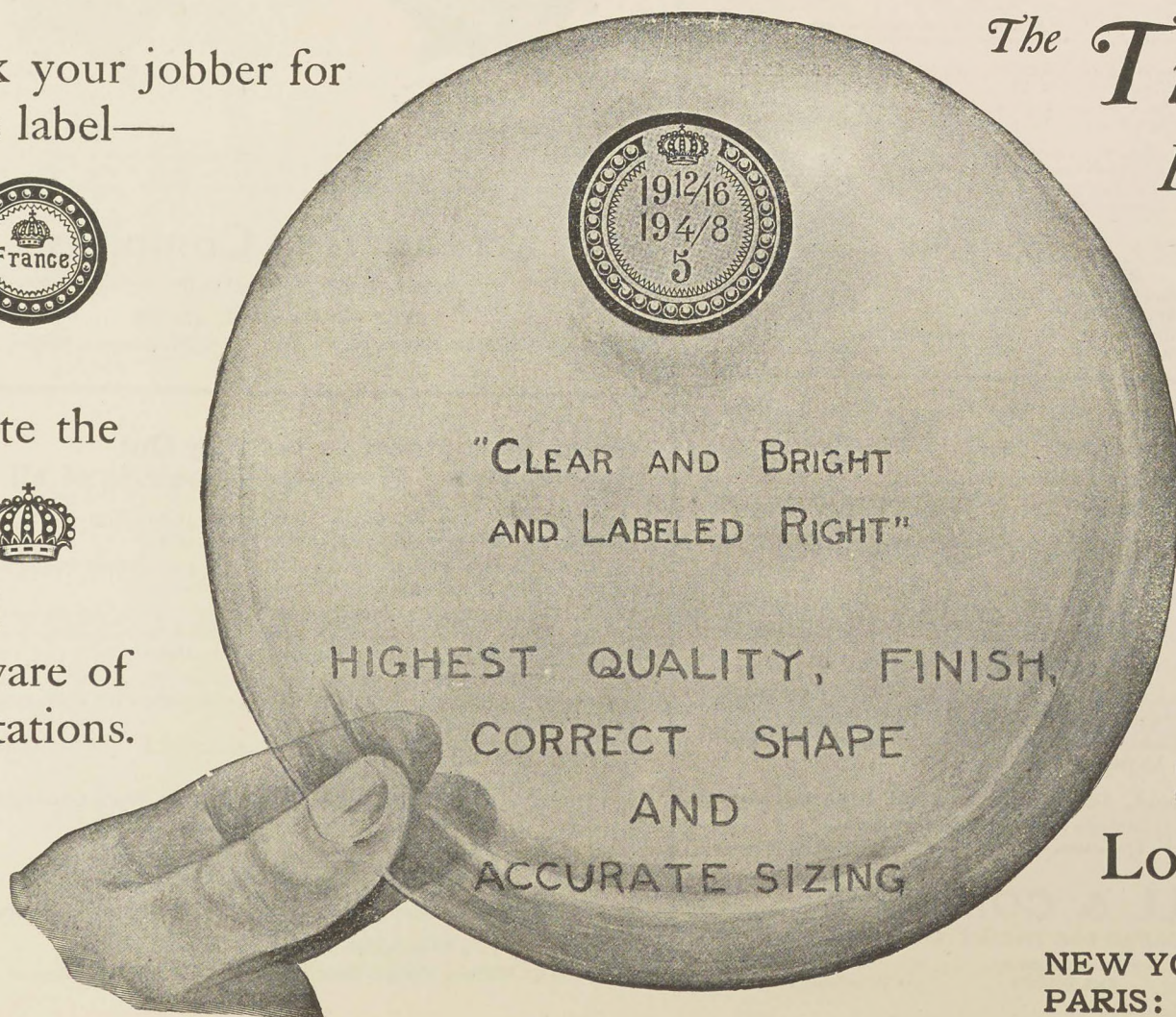
Ask your jobber for
this label—



Note the



and
beware of
imitations.



The **True Blue**
Beaded Label
French
Watch
Glass

Ask Your
Jobber
For Them

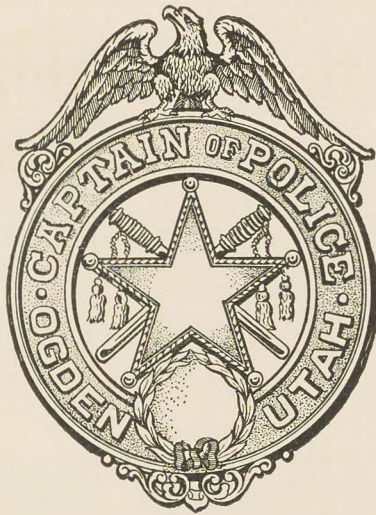
**SUSSFELD,
LORSCH & Co.**

Wholesale Agents

NEW YORK: 37 Maiden Lane
PARIS: 21 Rue de l'Echiquier



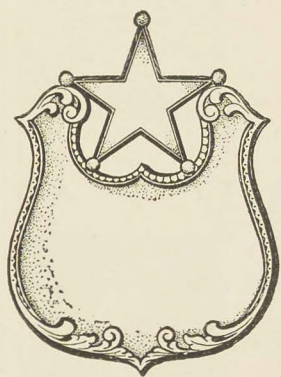
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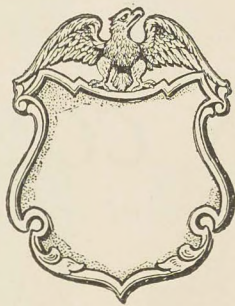
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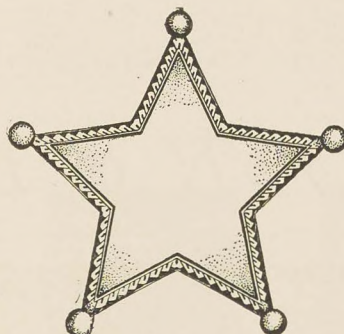
No. 342.



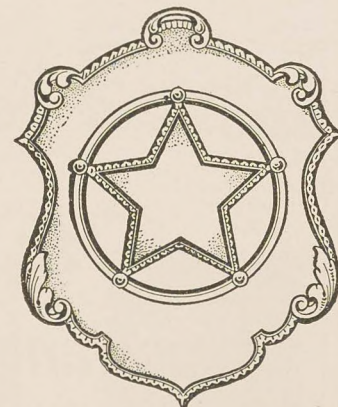
No. 333.



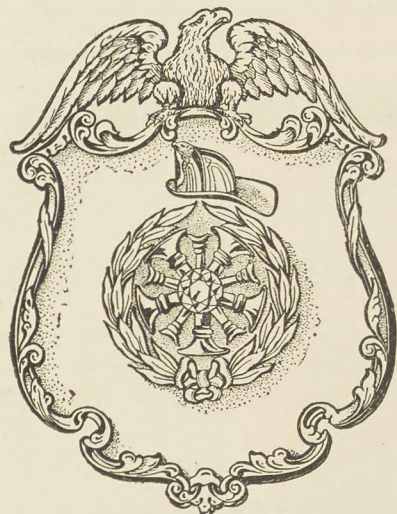
No. 328.



No. 336.



No. 334.



No. 327.



No. 330.



No. 326.

If you have occasion to furnish a presentation Star, Badge or Jewel, it is your duty to give the committee favoring you with the order, the best value you can possibly obtain. You are sure to please and make a nice profit besides by dealing direct with Wendell & Co., as they have been doing this class of work for almost twenty-five years. They have the experience, the facilities and the help; and are sure to give you better workmanship, more style, heavier weight and finer quality for the amount you wish to pay than can be had if you order through a wholesale house or small manufacturer.

They have two large and complete factories.

93, 95 & 97 William Street
New York City.

57 Washington Street,
Chicago.

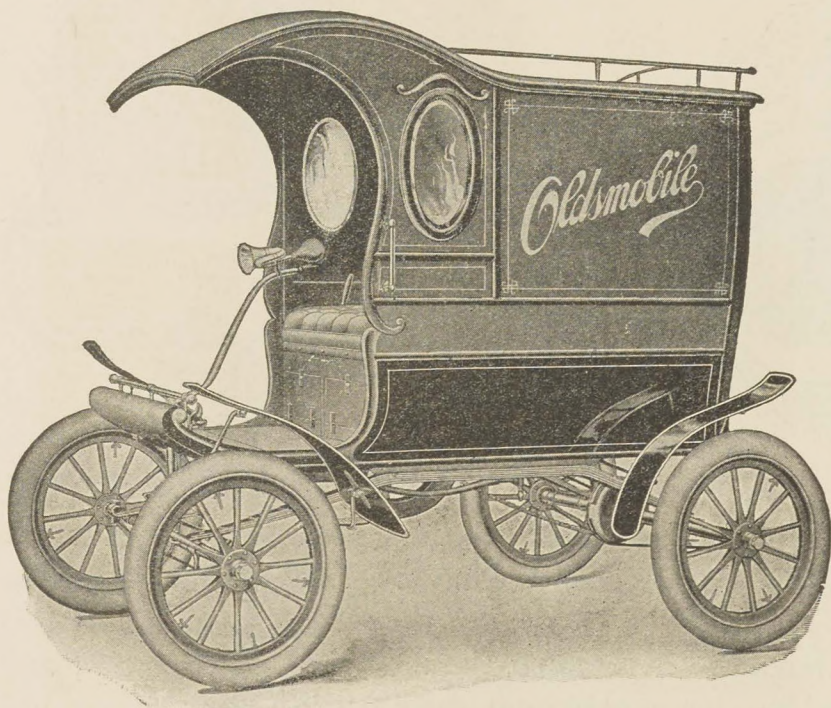
The above illustrations are from W. and Co's Catalogue of Medals, Badges, Jewels, Class Pins, Fine Emblem and Special Jewelry.

*Satisfied Customers Are
The Best Advertisement*

We will furnish upon request a list of satisfied customers that will be most convincing. Give us a chance to add your name to our satisfied list.

THE BROWN & DEAN COMPANY,
Gold and Silver Refiners.

*102 and 104 Richmond Street,
Providence, R. I.*



You see them wherever you go,
They go wherever you see them.

This graceful vehicle is a familiar sight in every city street. It is more economical than a horse and will cover more territory, never getting tired and always ready when wanted.

The Oldsmobile
Light Delivery Wagon,
Price \$850.00,

is built for service. It has a carrying capacity of 500 pounds in a carrying space of about 30 cubic feet. It will run 100 miles on one filling of gasoline.

For full information regarding the Oldsmobile line, see our nearest sales agent, or write direct to Dept. 66.

OLDS MOTOR WORKS, Detroit, Mich., U.S.A.

Member of the Association of Licensed Automobile Manufacturers.

Replenish Your Diamond Stock for May and June.

are of extra fine white and perfect. 2d quality are fine white with slight imperfections which do not affect the lustre of the stones. Order now on approval for comparison. Quality, weight and workmanship on Mountings and Diamonds guaranteed or money refunded. PRICES NET CASH.

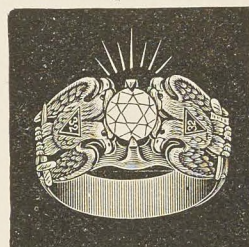
Our diamonds are not misrepresented so will insure quick sales. 1st quality



Artistic Elk Ring, finely finished, hand carved, in green and Roman gold mounting only, to order.
No. 305 \$30.00



Artistic Eagle Ring, finely finished, hand carved, rose gold mounting only, to order.
No. 306 \$24.00



Thirty-second Degree, enameled eagle, rose finish, very heavy mounting only, to order.
No. 307 \$16.75



Thirty-second Degree, 14 K. 8 dwt., finely finished enamel, hand carving, to fit any size diamond, price for mounting only.
No. 308 \$12.50



K. T. Emblem Ring, mounting 14 K. 8 dwt., finely enameled, hand carving, to fit any size diamond, mounting only.
No. 309 \$12.50



Masonic, Roman finished, 6 rose diamonds, heavy carved sides.
No. 310 \$18.50



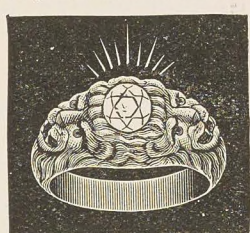
Extra heavy 14 K. mounting, to fit any size diamond, finished green, Roman or rose gold, price for mounting only, to order.
No. 311 \$15.00



Heavy 14 K. mounting, to fit diamond from 1/8 to 1/2 ct., finished green, Roman or rose gold, price for mounting only, to order.
No. 312 \$11.00



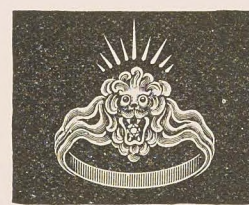
Extra fine rose finished, heavy weight, good workmanship, mounting only, to order.
No. 313 \$20.00



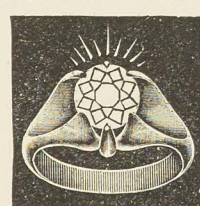
Rose finish, extra heavy weight, good workmanship, mounting only, to order.
No. 314 \$24.00



14 K. medium weight, Roman or rose gold finished, with diamond.
No. 315 \$8.00



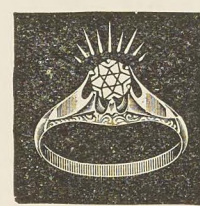
14 K. Roman or rose gold finish, with diamond.
No. 316 \$5.00



Tooth Mounting, 1 1/2 ct.
No. 317. 1st quality, \$207.75
No. 318. 2d " 179.70



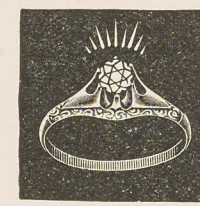
Rose Gold, 1/2 ct.
No. 319. 1st quality, \$53.80
No. 320. 2d " 47.00



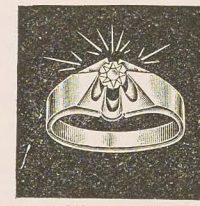
Engraved Belcher, 1/2 1-3/2 ct.
No. 321. 1st quality, \$54.75
No. 322. 2d " 51.50



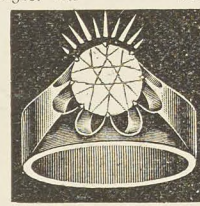
Claw Mounting, 1/4 ct.
No. 323. 1st quality, \$24.40
No. 324. 2d " 20.65



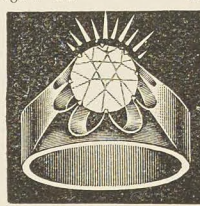
Tiffany Belcher, eng., 1/4 ct.
No. 325. 1st quality, \$23.50
No. 326. 2d " 20.45



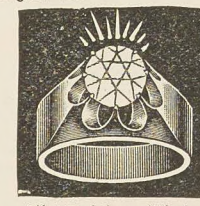
Fancy Tiffany Belcher, 1/4 ct.
No. 327. 1st quality, \$23.25
No. 328. 2d " 19.75



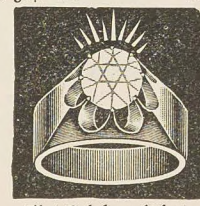
Flat Belcher, 2 ct.
No. 329. 1st quality, \$289.50
No. 330. 2d " 256.35



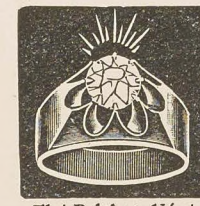
Flat Belcher, 1 3/4 ct.
No. 331. 1st quality, \$243.00
No. 332. 2d " 210.25



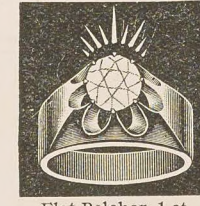
Flat Belcher, 1 1/2 ct.
No. 333. 1st quality, \$208.20
No. 334. 2d " 180.50



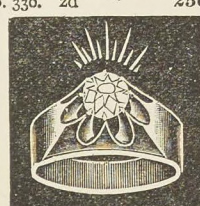
Flat Belcher, 1 1/4 ct.
No. 335. 1st quality, \$171.00
No. 336. 2d " 143.35



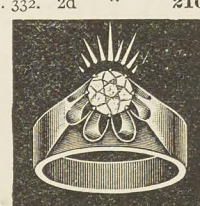
Flat Belcher, 1 1/2 ct.
No. 337. 1st quality, \$152.75
No. 338. 2d " 123.00



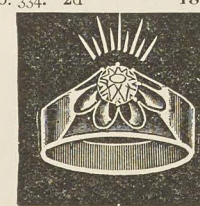
Flat Belcher, 1 ct.
No. 339. 1st quality, \$134.40
No. 340. 2d " 114.50



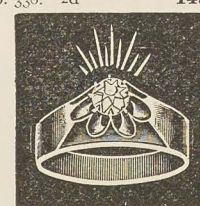
Flat Belcher, 3/4 ct.
No. 341. 1st quality, \$90.45
No. 342. 2d " 79.20



Flat Belcher, 5/8 ct.
No. 343. 1st quality, \$71.00
No. 344. 2d " 62.25



Flat Belcher, 1/2 ct.
No. 345. 1st quality, \$53.80
No. 346. 2d " 46.75



Flat Belcher, 3/8 ct.
No. 347. 1st quality, \$38.55
No. 348. 2d " 33.13



Flat Belcher, 1/4 ct.
No. 349. 1st quality, \$24.00
No. 350. 2d " 20.45



Flat Belcher, 1/8 ct.
No. 351. 1st quality, \$17.00
No. 352. 2d " 14.80



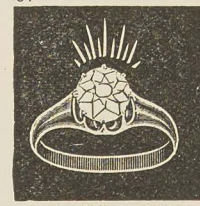
Plain Tiffany, 2 ct.
No. 353. 1st quality, \$284.10
No. 354. 2d " 251.00



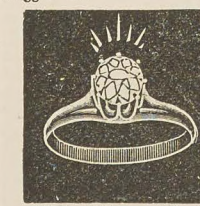
Plain Tiffany, 1 3/4 ct.
No. 355. 1st quality, \$238.00
No. 356. 2d " 205.25



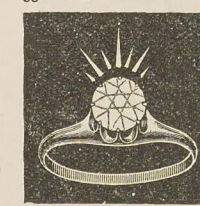
Plain Tiffany, 1 1/2 ct.
No. 357. 1st quality, \$204.45
No. 358. 2d " 176.50



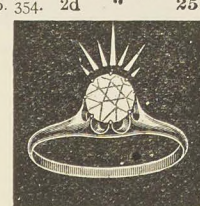
Plain Tiffany, 1 1/4 ct.
No. 359. 1st quality, \$167.80
No. 360. 2d " 140.00



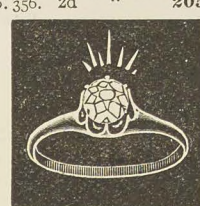
Plain Tiffany, 1 1/2 ct.
No. 361. 1st quality, \$150.00
No. 362. 2d " 120.45



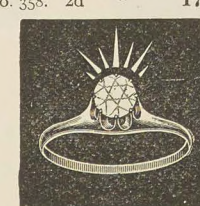
Plain Tiffany, 1 ct.
No. 363. 1st quality, \$131.25
No. 364. 2d " 111.50



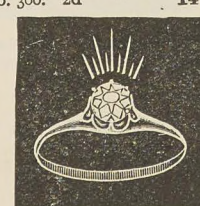
Plain Tiffany, 3/4 ct.
No. 365. 1st quality, \$107.75
No. 366. 2d " 96.10



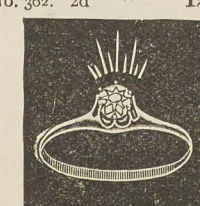
Plain Tiffany, 5/8 ct.
No. 367. 1st quality, \$88.35
No. 368. 2d " 77.00



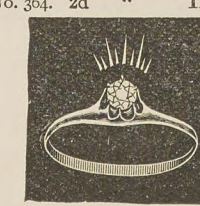
Plain Tiffany, 1/2 ct.
No. 369. 1st quality, \$68.85
No. 370. 2d " 60.25



Plain Tiffany, 3/8 ct.
No. 371. 1st quality, \$52.30
No. 372. 2d " 45.35



Plain Tiffany, 1/4 ct.
No. 373. 1st quality, \$36.90
No. 374. 2d " 31.70

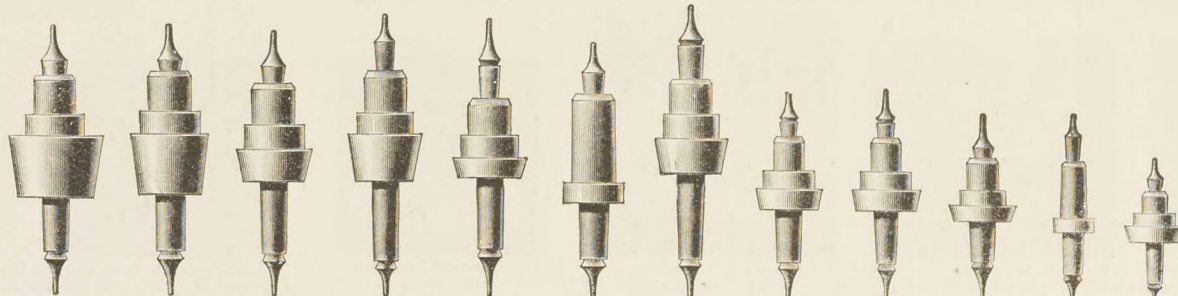


Plain Tiffany, 1/8 ct.
No. 375. 1st quality, \$23.00
No. 376. 2d " 19.40

A. C. BECKEN, 156 Wabash Ave., Chicago, Ill.

698
Read Over These **New Reduced Prices.** Will Interest **You.**

GENUINE
WALTHAM
BALANCE
STAFFS.



No. 1364.

1365.

1703.

1703A.

2844.

$$\begin{array}{r} 8142 \\ 1800 \end{array}$$

7355.

8142.

13220

19360

$$\begin{array}{r} 8142 \\ \times 5000 \\ \hline \end{array}$$

8142

Genuine Waltham Balance Staffs, 7-Jewel Grade, \$2.00 per dozen.

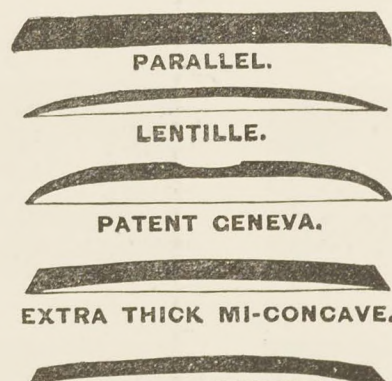
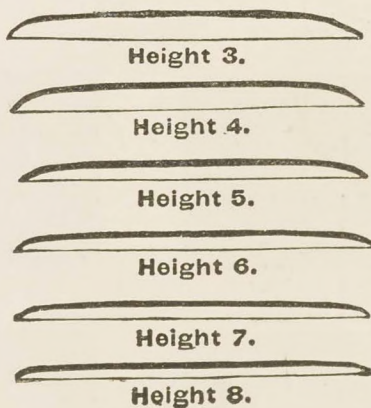
| | | | | | | | | |
|----|----|----|-----------------|----|----|------|----|----|
| 66 | 66 | 66 | 15 | 66 | 66 | 3.00 | 66 | 66 |
| 66 | 66 | 66 | 17 | 66 | 66 | 4.00 | 66 | 66 |
| 66 | 66 | 66 | 21 | 66 | 66 | 5.00 | 66 | 66 |
| 66 | 66 | 66 | Jewels, 7 to 15 | 66 | 66 | 2.00 | 66 | 66 |
| 66 | 66 | 66 | 17 to 23 | 66 | 66 | 2.25 | 66 | 66 |

Genuine Elgin Balance Staffs, 7-Jewel Grade, \$2.00 per dozen.

| | | | | | | | | | |
|---|---|---|---|-----------------|---|---|------|---|---|
| " | " | " | " | 15 | " | " | 3.00 | " | " |
| " | " | " | " | 17 | " | " | 4.00 | " | " |
| " | " | " | " | Jewels, 7 to 21 | " | " | 2.00 | " | " |
| " | " | " | " | Roller Jewels, | " | " | .60 | " | " |

THE CELEBRATED V & P WATCH GLASSES AT RIGHT PRICES.

Fac-simile of Our Label.



PRICE=LIST

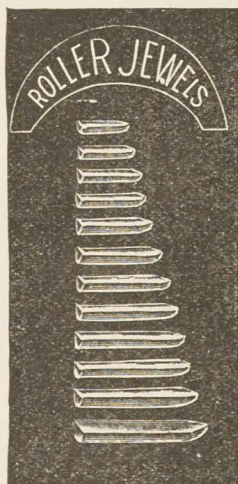
| | | |
|------------------------------|--------|------------|
| Genevas, | \$2.00 | per gross. |
| Thick Mi-Concaves, | 2.75 | " " |
| Parallels, | 4.50 | " " |
| Flat Lunettes, | 1.50 | " " |

| | |
|----------------------------------|-------------------|
| Patent Genevas, | \$4.50 per gross. |
| Extra Thick Mi-Concaves, | 5.50 " " |
| Lentilles, | 7.50 " " |
| High Lunettes, | 1.50 " " |

Orders for less than $\frac{1}{2}$ gross will be charged at dozen price.

BLANK ORDER SHEETS SENT UPON APPLICATION.

REGENT BRAND Specialties are Still in the Lead.



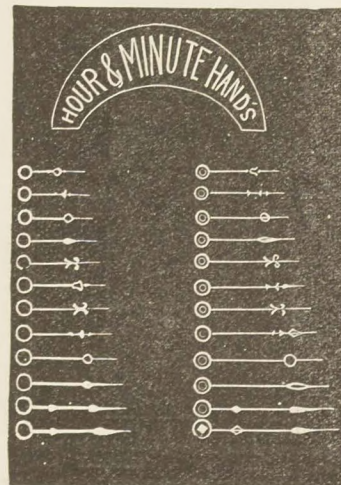
Price, \$1.50 Per Gross.
 " .15 " Dozen.



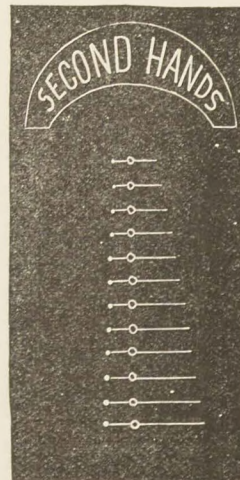
Price, \$10.50 Per Gross.
 " 1.00 " Dozen.



This Handsome Solid Oak Cabinet FREE with your first order for 1 Gross Regent Mainsprings.



Price, \$2.00 Per Gross.
 " .20 " Dozen.



Price, \$1.00 Per Gross.
 " .10 " Dozen

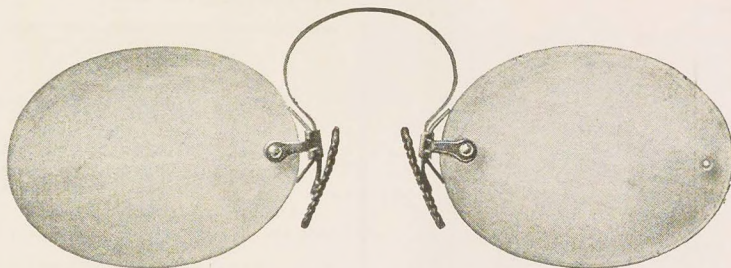
**A Full Stock of Watchmakers' TOOLS of Every Description.
Orders Filled From Any Catalogue.**

Send for a sample of the PLATO CLOCK. The wonder of the New Century! No hands; no dial. Price, \$6.00 list. Discount to the trade.

CROSS & BEGUELIN, Importers, Exporters and Manufacturers,
WATCHES, DIAMONDS, JEWELRY,
SILVER-PLATED WARE, ETC., 17 Maiden Lane, New York.

Our New Line of Rimless Eyeglasses with Offset Guard.

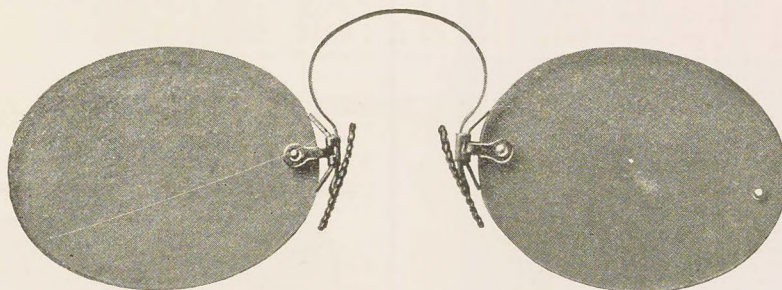
(Patented May 3, 1904)



Mounted with our "Albex" lenses, "O" size. All focus numbers.

No. 950. Nickel-plated Mounting.

No. 955. Alloy Mounting.



Mounted with Mi-coquille lenses, "OO" size.

No. 960. Nickel-plated Mounting.

No. 965. Alloy Mounting.

Description.

MOUNTING. Our patented construction, light and strong. Lenses cannot work loose.

GUARD. Neatly finished offset guard, comfortable and cleanly. Designed on best principles. Perfectly adjustable.

LENSES. Our "Albex" and Mi-coquille lenses. Smooth, flat edges.

COST. Notwithstanding the exceptional merit of our new styles, prices will be less than any other line of rimless eyeglasses on the market.

Ask your Jobber to quote prices.

T. A. WILLSON & CO.

Manufacturing Opticians

Established 1870.

READING, PA., U.S.A.

ARISTON Balance Staffs & Jewels

BALANCE STAFFS. WALTHAM, ELGIN, HAMPDEN AND ILLINOIS.

| No. of Bot. | Kind. | Size. | Cat. No. | Size of Piv. | No. of Bot. | Kind. | Size. | Cat. No. | Size of Piv. | No. of Bot. | Kind. | Size. | Cat. No. | Size of Piv. | No. of Bot. | Kind. | Size. | Cat. No. | Size of Piv. | No. of Bot. | Kind. | Size. | Cat. No. | Size of Piv. | | |
|-------------|---------|-------|----------|--------------|-------------|-------|--------------|-----------|--------------|-------------|-------|-------|-----------|--------------|-------------|-------|-------|----------|--------------|-------------|-------|-------|----------|--------------|-----|----|
| 1 | Waltham | 18 | 278 | 16 | 19 | Wal. | 6 & 8 | 12318 | 10 | 37 | Elg. | 18 | 858 o. s. | 12 | 55 | Elg. | 18 | 869 | 10 | 869 | 10 | 869 | 10 | 869 | 10 | |
| 2 | " | 18 | 279 | 15 | 20 | " | 6 & 8 | 12318 | 11 | 38 | " | 18 | 858 o. s. | 13 | 56 | " | 18 | 873 | 10 | 873 | 10 | 873 | 10 | 873 | 10 | |
| 3 | " | 18 | 281 | 15 | 21 | " | 6 | 13219 | 10 | 39 | " | 18 | 858 o. s. | 14 | 57 | " | 18 | 873 | 10 | 873 | 10 | 873 | 10 | 873 | 10 | |
| 4 | " | 18 | 1364 | 13 | 22 | " | 6 | 13219 | 11 | 40 | " | 18 | 858 n. s. | 12 | 58 | Hamp. | 18 | 854 | 11 | 854 | 11 | 854 | 11 | 854 | 11 | |
| 5 | " | 18 | 1364 | 14 | 23 | " | 6 | 13220 | 10 | 41 | " | 18 | 858 n. s. | 13 | 59 | " | 18 | 854 | 12 | 854 | 12 | 854 | 12 | 854 | 12 | |
| 6 | " | 18 | 1365 | 12 | 24 | " | 6 | 13220 | 11 | 42 | " | 18 | 858 n. s. | 14 | 60 | " | 18 | 854 | 13 | 854 | 13 | 854 | 13 | 854 | 13 | |
| 7 | " | 18 | 1365 | 13 | 25 | " | 0 | 19365 | 9 | 43 | " | 18 | 858 n. s. | 15 | 61 | " | 18 | 854 | 14 | 854 | 14 | 854 | 14 | 854 | 14 | |
| 8 | " | 18 | 1365 | 14 | 26 | " | 0 | 19365 | 10 | 44 | " | 18 | 861 n. s. | 11 | 62 | " | 18 | 861 | 15 | 861 | 15 | 861 | 15 | 861 | 15 | |
| 9 | " | 16 | 1210 | 11 | 27 | " | 0 | 19369 | 9 | 45 | " | 16 | 861 | 12 | 63 | " | 12 | 578 | 16 | 578 | 16 | 578 | 16 | 578 | 16 | |
| 10 | " | 16 | 1210 | 12 | 28 | " | 0 | 19369 | 10 | 46 | " | 16 | 861 | 13 | 64 | " | 6 | 216 | 17 | 216 | 17 | 216 | 17 | 216 | 17 | |
| 11 | " | 16 | 2844 | 10 | 29 | " | Jewel Series | 9 | 47 | " | 16 | 864 | 11 | 65 | " | 100 | " | 11 | 864 | 18 | 864 | 18 | 864 | 18 | 864 | 18 |
| 12 | " | 16 | 2844 | 11 | 30 | Elg. | 18 | 857 o. s. | 12 | 48 | " | 16 | 864 | 12 | 66 | 111 | 18 | 5 | 12 | 5 | 12 | 5 | 12 | 5 | 12 | 5 |
| 13 | " | 16 | M 99 | 11 | 31 | " | 18 | 857 o. s. | 13 | 49 | " | 16 | 864 | 13 | 67 | " | 18 | 5 | 13 | 5 | 13 | 5 | 13 | 5 | 13 | 5 |
| 14 | " | 16 | M 99 | 12 | 32 | " | 18 | 857 o. s. | 14 | 50 | " | 6 | 868 | 10 | 68 | " | 18 | 205 | 14 | 205 | 14 | 205 | 14 | 205 | 14 | |
| 15 | " | 14 | 7355 | 11 | 33 | " | 18 | 857 n. s. | 12 | 51 | " | 6 | 868 | 11 | 69 | " | 18 | 205 | 15 | 205 | 15 | 205 | 15 | 205 | 15 | |
| 16 | " | 14 | 7355 | 12 | 34 | " | 18 | 857 n. s. | 13 | 52 | " | 6 | 1232 | 10 | 70 | " | 16 | 405 | 16 | 405 | 16 | 405 | 16 | 405 | 16 | |
| 17 | " | 12 | 10 | 35 | " | 18 | 857 n. s. | 14 | 53 | " | 6 | 1232 | 11 | 71 | " | 16 | 705 | 17 | 705 | 17 | 705 | 17 | 705 | 17 | 705 | 17 |
| 18 | " | 12 | 11 | 36 | " | 18 | 857 n. s. | 15 | 54 | " | 0 | 869 | 9 | 72 | " | 6 | 905 | 18 | 905 | 18 | 905 | 18 | 905 | 18 | 905 | 18 |

Please order Staffs and Jewels by numbers.

The Ariston Balance Staffs are genuine American-made, highly polished for high-grade movements; each pivot is gaged and marked as shown on chart in lid of Cabinet.

Price, per Cabinet (1 gross), \$13.50 Net.

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"Similar in appearance to illustrations."

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|---|-----------------|---------------|
| Balance Staffs, American-made, "gray finish," | per doz., | \$1.00 |
| Balance Staffs, American-made, polished, "Ariston," | " " | 1.25 |
| Balance Jewels, American-set, "Garnet," | " " | .75 |
| Balance Jewels, American-set, Sapphire, "Ariston," | " " | 1.25 |
| Roller Jewels, for American watches, | " " | .25 |
| Waltham Hands, H. & M., genuine, | per doz. pair, | .25 |
| Elgin Hands, H. & M., on card, | " " | .25 |
| Waltham Hands, Seconds, genuine, | per doz., | .15 |
| Elgin Hands, Seconds, genuine, | " " | .15 |
| Swiss Steel Hands, H. & M., | per doz. pairs, | .20, .50, .75 |
| Best Composition Hands, XIV, H. & M., | per doz. pair, | 1.00 |
| Best Composition Hands, XIV, Seconds, | per doz., | .35 |

Cash Discount, 10%, except on Net prices.

JOS. B. BECHTEL & Co.,
725 Sansom Street, Philadelphia.

SOFT SOLDERING WITH ACIDS, PASTES AND FLUIDS A THING OF THE PAST!!!

Practically as good as hard soldering, and without effort or expense.

Requires no acids of any description.



Is Rapid, Clean, Economical, Practical, Convenient. Always Ready, Easy to Use.

Price per stick, 20c.; per dozen, \$2.25; sample by mail, 24c.

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"MAY BRINGS SUNSHINE FROM ABOVE;
YOUNG MAN'S FANCY TURNS TO LOVE,
PRINTS ON MAID-LIPS KISSES SWEET—
LIKE OUR RINGS, CAN'T BE BEAT."

We are closing out a limited number of Ladies' high-grade, 10 K. fancy set rings, discontinued patterns, at \$100.00 net for box of 48 rings.

You can readily realize a Profit of **300%** on the same.
Order a box on approval (express paid).

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405
Masonic Temple,
L. KATLINSKY.

L. Witsenhausen
37-39 Maiden Lane.
N.Y.



WINTER MADE IT, WHICH SIGNIFIES IT IS RIGHT.

"Winter" is not the cheapest, but "Winter" goods are right. If you want the best at prices that are right, write "Winter" for

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ENCYCLOPEDIA
AMERICANA
STORE FIXTURES AND FITTINGS

The Finest and Most Complete Book of its Kind Ever Issued.

Plans, interior views, new suggestions, separate fixtures, cases, counters, floor cases, soda fountain fixtures, tables, chairs, desks, specialties, etc. Illustrated fully, described and listed in so plain a manner that you can make your own plans and estimate the cost of your fixtures.

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We do not claim to be the largest in the world, but we are proud of our factory, our reputation and our line. We do claim to make the best, at prices that are right. Not how much, not how cheap, but how good. Ask our customers. If you want good, practical, substantial, ahead-of-the-times fixtures, write us.

M. WINTER LUMBER COMPANY,
SHEBOYGAN, WIS.

Established 1865.

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C. D. Smith Drug Co., St. Joseph, Mo., Sales Agents for Missouri, Kansas, Nebraska, Oklahoma Ter. and Ind. Ter.
R. H. Birdsall, 42 Front Street, Portland, Oregon, Sales Agent for Oregon and Washington.
Texas Drug Co., Dallas, Texas, Sales Agent for Texas.



St. Louis Clock and Silver Ware Co.

616 LOCUST STREET, ST. LOUIS, MO.

WORLD'S FAIR SOUVENIRS.

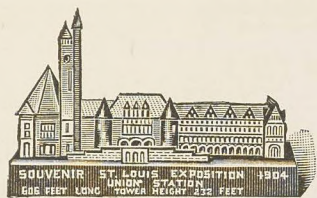
A few of our endless variety. We guarantee these goods to be plated with Pure Gold 24 karats fine and hand-finished, superior to any gold-plated goods on the market.

701

"I'm from Missouri."
Show Me.



No. 20206 Paper Weight. Venetian rich gold. Length, $4\frac{1}{2}$ in.; depth, 2 in. \$1.70.



No. 2021 Paper Weight. Rich gold. Height, 3 in.; length, $4\frac{1}{2}$ in.; depth, 2 in. \$1.70.



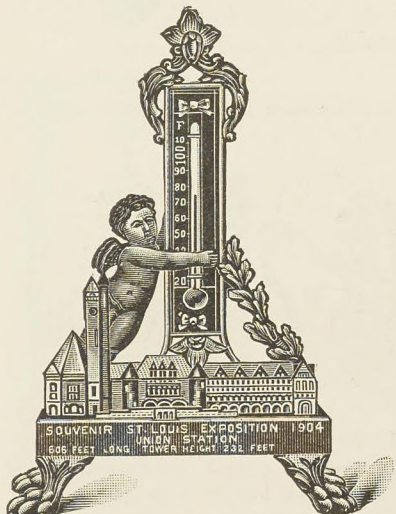
All Prices Subject to
Keystone Key and
Cash Discount.

No. 2073 "Show Me" Mules. Rich gold. 6 in. high, 6 in. wide. \$3.00.

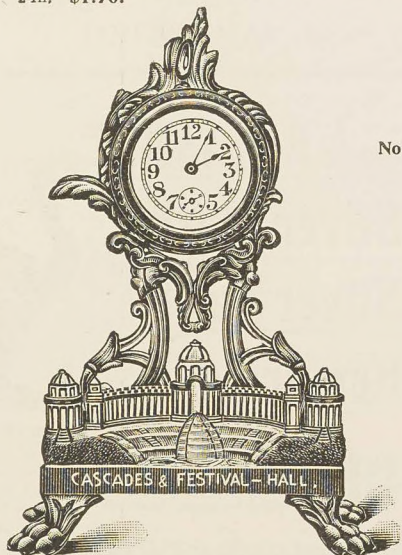


No. 1903. Souvenir Cup. Rich gold. Width, $4\frac{1}{4}$ in. \$1.80.

All Prices Subject to Keystone Key and Cash Discount.



No. 19986. Thermometer. Rich Venetian gold. Height, 10 in.; width, $5\frac{1}{2}$ in. \$5.40.



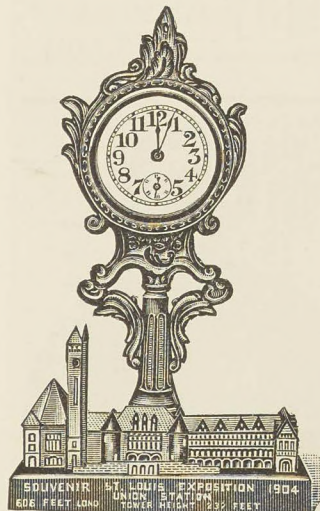
No. 19556. Clock. Venetian rich gold. 1 day time. 2 in. porcelain dial. Height, $8\frac{1}{2}$ in.; width, 6 in. \$6.40.



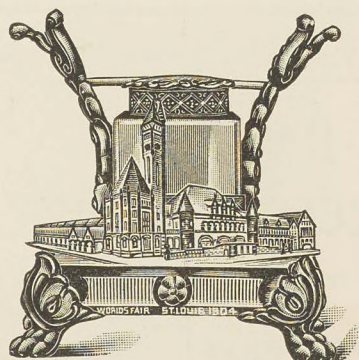
No. 1990. Ink Stand. Rich gold. $6\frac{1}{2}$ in. long, $4\frac{1}{2}$ in. high. \$4.75.



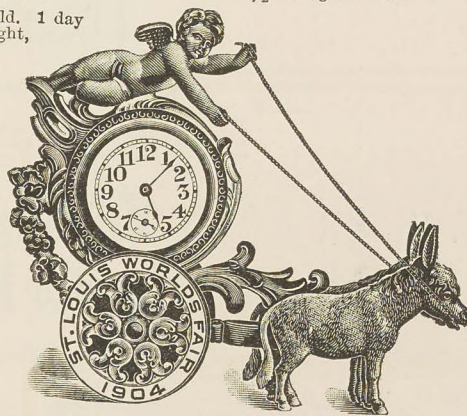
No. 2066. Calendar. Rich gold. 6 in. high, $4\frac{1}{2}$ in. wide. \$3.40.



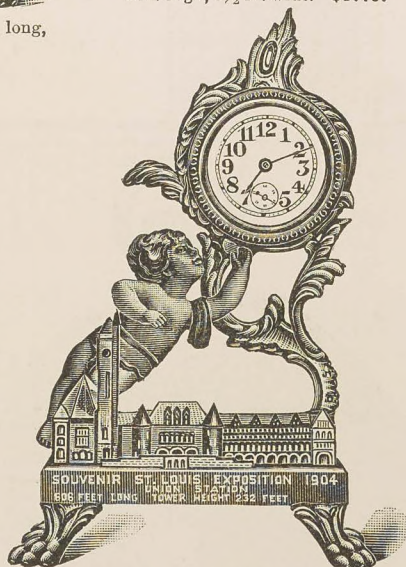
No. 2056. Clock. 1 day time. 2 in. porcelain dial. Rich gold. Height, 8 in.; width, $4\frac{1}{2}$ in. \$5.70.



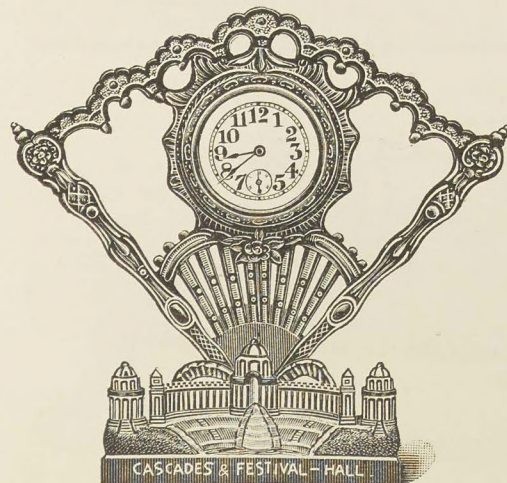
No. 2037. Ink. Rich gold. Height, $4\frac{1}{2}$ in.; width, $4\frac{1}{2}$ in. \$2.70.



No. 2023. Clock. 1 day time. 2 in. porcelain dial. Rich gold. $7\frac{1}{2}$ in. high; 9 in. long. \$8.80.



No. 1898. Clock. 1 day time. 2 in. porcelain dial. Rich gold. Height, 9 in.; width, $5\frac{1}{2}$ in. \$6.75.

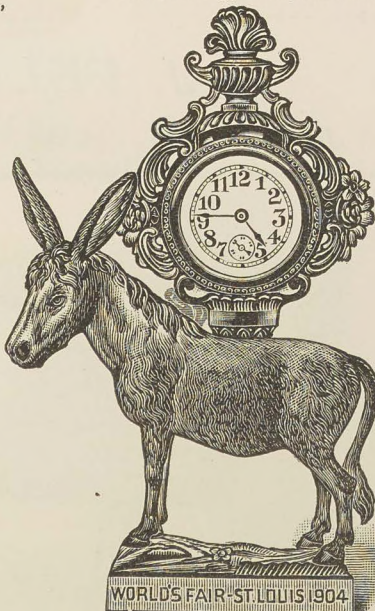


No. 2043. Clock. Rich gold. 1 day time. 2 in. porcelain dial. Height, 7 in.; width, 8 in. \$5.40.

Designs
Patented.

Souvenirs
of Every
Description.

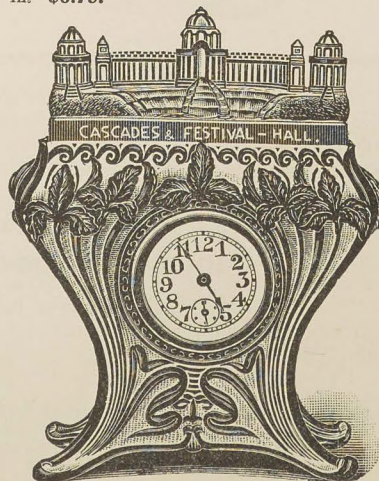
Largest
Line of
Exclusive
Designs.



No. 2062. Clock. Rich gold. 1 day time. Height, $10\frac{1}{2}$ in.; width, 6 in. \$9.50.

Designs
Patented.

ALL PRICES
SUBJECT
TO
KEYSTONE
KEY AND
CASH
DISCOUNT.



No. 1952. Clock. 1 day time. 2 in. porcelain dial. Height, 7 in.; width, 6 in. Rich gold. \$7.50.

Are Your Special Orders and Repairs Being Done to Your Satisfaction

IF NOT, WHY NOT

A. P. CRAFT & CO.

312 Stevenson Building,

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We are satisfying 500 retail jewelers. Why not you

We are filling Special Orders and doing Repair Work every business day in the year and a few nights and other days besides; why shouldn't our work be more satisfactory than the shop that attends to Repairs and Special Orders as a side line

OUR PRICES WILL CAUSE MORE SATISFACTION.

Send for stickers.

LIQUID AMBER JEWELERS CEMENT



The Strongest Cement

yet discovered—much superior to Shellac or other gum or gelatine cements.

It has no equal for fixing Pallet Stones and Roller Pins, making a much stronger and cleaner job than shellac. It is quite transparent, and will successfully repair Broken Cut Glass, China, etc. The same properties make it invaluable for setting fine Pearls. It will fix a slack Watch Glass so that dirt cannot work through the bezel, and do any other job where a strong, clean cement is required.

Sold by every material dealer in America.
Price, 25c.

SUSSFELD, LORSCH & CO.,
Wholesale Distributing Agents,
37 Maiden Lane, New York.

We do RELIABLE Silver-Plating and Silverware Repairing



Can this be Repaired?

Yes!

We Repair any article in the Silverware line, making new parts to match the old ones, broken or melted off, the same as new.
We Replate any article you want in Gold, Silver, Nickel, Bronze, Brass, Oxidized Silver, Old Bronze, Statuary Bronze, and all the Antique or Old Finishes, etc.

Silverware
Repaired and
Replated.

Sercomb Company

A. N. SPERRY, Manager.

1429 Wabash Ave.,
CHICAGO.

Established 38 Years.

Watch Case Making, Repairing, Remodeling and Reconstructing.



BEFORE.

Old English and Swiss Cases Changed to Fit American Stem-Wind Movements.
Engraving and Engine-Turning. Gold and Silver Plating.
Satin-Finishing and Polishing.

SEND FOR PRICE-LIST.

MINIATURE PORTRAITS.

N. J. FELIX,
18 John Street, New York City.



AFTER.

This is a little Lathe for the tool room and for experimental work or for manufacturing operations where the utmost refinement in accuracy is desired. With its attachments for milling and gear-cutting it makes a most desirable tool.

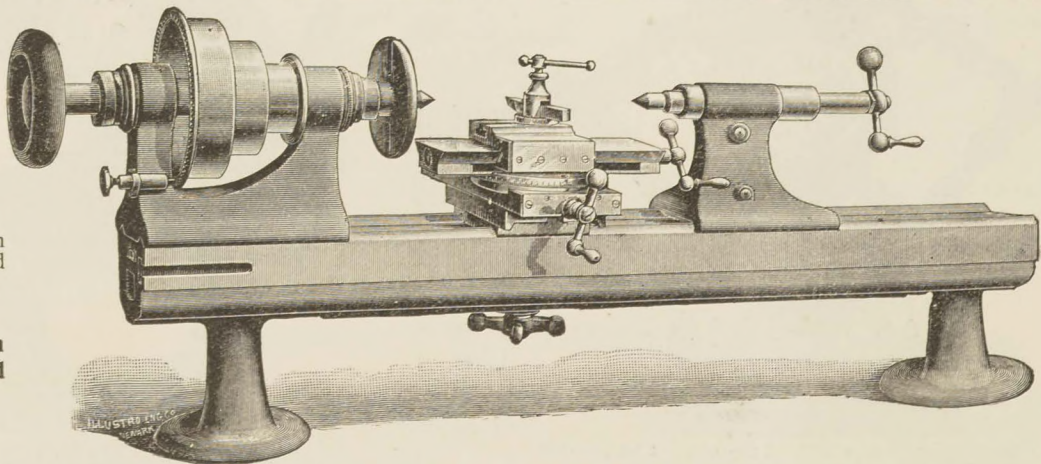
No. 5 Machinists' Bench Lathe with Compound Slide Rest.

The design and building have been carried forward in a painstaking way and work can be handled rapidly and with great convenience.

Full details will be sent on request.

Makers of Bench Lathes and Attachments, Bench Milling Machines, Bench Drill Presses and Bench Tapping Machines.

Special Bulletins of each on request.



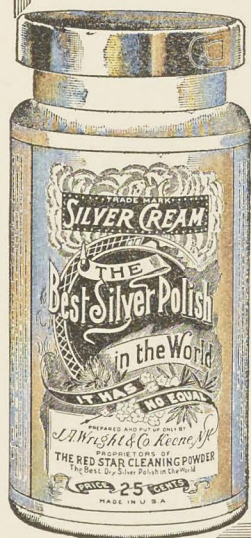
SLOAN & CHACE MFG. CO., Limited, NEWARK, N. J., U.S.A.

A Handsome Polished Oak Display Stand FREE

Question.

What is the best way to sell Silver Cream?

We have asked this of a score of dealers who have made a remarkable success selling Silver Cream.



Our new jars are fitted with a patent cap. They will not leak. The jar is air-tight, so the contents will keep fresh for an indefinite time. The cap can be removed instantly. It won't stick—a child can take it off. These three points do away with all the objectionable features of a screw cap.



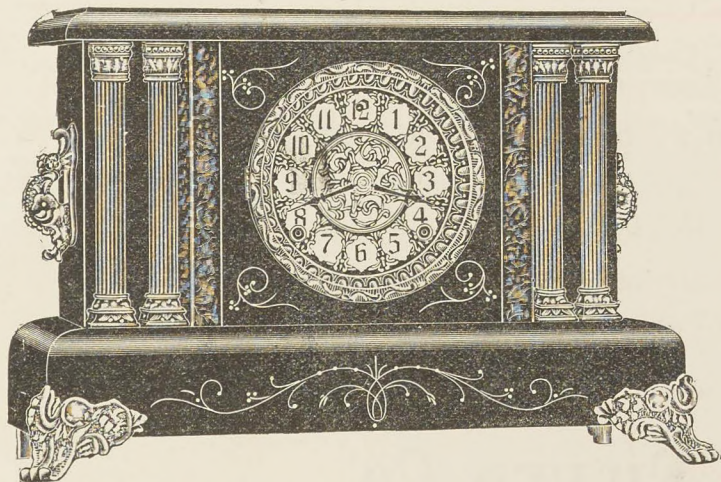
Answer.

Display the polish.
Recommend it to your customers.
Get them to try it.
After that it sells itself.

Order from your jobber,
or direct.

Special Offer—With an order for one gross half-pint or 25c. size Silver Cream, price \$18.00, or its equivalent in other sizes, we will give absolutely free this beautiful display stand. This is the best advertising proposition ever offered by the manufacturers of Silver Cream. This stand will more than double your sales of Silver Cream.

J. A. WRIGHT & CO., Keene, N. H.



SESSIONS CLOCKS

Superior Finish. Reasonable Prices.
Substantial Movements. Excellent Timekeepers.

We have made EXTENSIVE ADDITIONS to our factories and largely increased our facilities.

We call your attention to the extra QUALITY and to the VARIETY of DESIGNS in our MARBLEIZED CLOCKS which we believe are the BEST on the MARKET. Write for Catalogue.

The Sessions Clock Co.,

Manufacturers of

Successors to E. N. WELCH MFG. CO.,

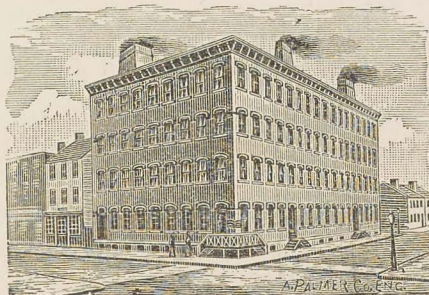
Marbleized Wood, Oak Mantel and Office Clocks,

Main Office and Factories,

FORESTVILLE, CONNECTICUT, U.S.A.

New York Salesrooms, 37 Maiden Lane.

L. LELONG & BROTHER



Southwest Corner
Halsey and Marshall Streets,
NEWARK, N. J.

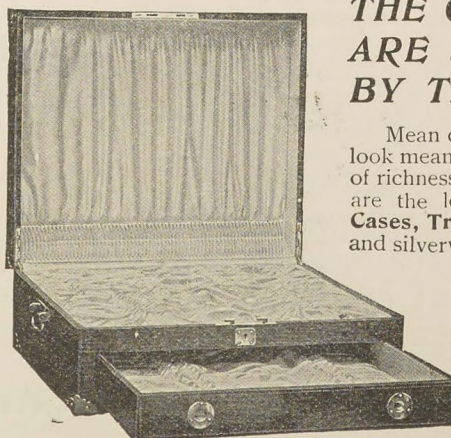
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Assayers and

Sweep Smelters

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Prompt attention given to Old Gold
and Silver forwarded to us
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Sweepings Our Specialty.



A sample of our handsome Chests, with one drawer.
Made in a variety of hard woods, highly polished;
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Mean cases or trays make the best goods look mean; handsome cases give a semblance of richness to even the poorest goods. We are the leading manufacturers of **Boxes, Cases, Trays, Chests**, for watches, jewelry and silverware. Our cases, etc., are known to be the greatest help in the sale of goods. We have qualities and grades to suit all jewelers. Write or call.

L. WEIL & SON,

Manufacturers of
Cases, Trays and Chests for Jewelry
and Silverware,

32 Maiden Lane, NEW YORK.
Send for Catalogue.



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to our Warerooms, 9, 11, 13 and 15 Maiden Lane, New York,
to inspect the largest and most complete line in

Choice Sterling Silver, Fine Silver Plate and Rich Cut Glass

ever displayed. We are also showing our usual new assortment of our Cut Glass with Sterling Silver Mountings.

We shall be pleased to have you make our offices your headquarters while in New York, whether you purchase largely or not—that is your privilege and our wish—and we offer you the freedom of our establishment.

Our facilities for producing in the best possible manner anything that can be made in Sterling Silver, Silver Plate or Cut Glass, which have been largely increased the past few months are unsurpassed, and our combined force of several thousand experienced silver and cut glass workers are at your service.

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Warerooms,
9, 11, 13 and 15 Maiden Lane, New York.

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GENERAL OFFICE, MERIDEN, CONN.

THE KEYSTONE

Vol. 25

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Philadelphia, May, 1904

No. 5

Entered at the Philadelphia Post-office as second-class matter January 14, 1887

THE KEYSTONE

A Monthly Journal Devoted to the Interests of the Jewelry and Optical Trades.

Subscription—One Dollar per year, postpaid, to all parts of the United States, Hawaii, Porto Rico, Philippines, Guam, U. S. Island of Samoa, Cuba, Mexico and Canada (except Newfoundland); single copies, regular issues, 15 cents; special issues, 25 cents. To Foreign Countries 10 Shillings (\$2.44) per year; single copies, 1 Shilling (25 cents).

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Advertisements—Advertising rates furnished on application. No advertisements but those of a reputable character will be inserted.

To Advertisers—Copy for advertisements must reach us by the 25th of each month to insure insertion in the issue of the following month. Notices of changes in advertisements should reach us not later than the 20th of the previous month.

All communications should be addressed to

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CHICAGO OFFICE: 19TH & BROWN STREETS,
103 STATE ST. PHILADELPHIA, PA.

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HIRST BROS. & CO., LTD., 8 CURZON ST., OLDHAM, LANCASHIRE.
SCOTLAND—JOHN BAIRD, 68 MITCHELL STREET, GLASGOW.

Index to Advertisers on page 847

CONTENTS

| | PAGE |
|--|---------------|
| AMONG THE TRADE | 787, 791 |
| EDITORIAL | 705, 706, 707 |
| GRAND OPENING OF THE WORLD'S FAIR | 745 |
| ITEMS OF INTEREST | 837 |
| JEWELERS' ADVERTISING | 781 |
| LETTERS FROM THE TRADE | 785 |
| MODERN MERCHANDISING | 712 |
| NEW GOODS AND INVENTIONS | 833, 835 |
| NEWS LETTERS: | |
| Birmingham | 753 |
| Chicago | 729, 731, 733 |
| Cincinnati | 759 |
| Cleveland and Northern Ohio | 751 |
| Dallas and the Lone Star State | 755 |
| Detroit | 735 |
| Kansas City and the Great Southwest | 753 |
| New York | 723, 725 |
| News from the Northwest | 747 |
| Omaha and the West | 751 |
| Philadelphia | 755 |
| Pittsburg and Vicinity | 757 |
| Providence and Attleboro | 749 |
| San Francisco | 735 |
| St. Louis | 760 |
| OPTICAL DEPARTMENT: | |
| An Exposition of the Principles of Refraction in the Human Eye Based on the Laws of Conjugate Foci | 801 |
| Clinics in Optometry | 815, 819 |
| Editorial | 811 |
| Influence of Environment on the Eye | 827 |
| Ophthalmoscopy | 817 |
| Optical Notes | 825 |
| Optical Questions and Answers | 803 |
| Optical Treatment of Concomitant Esotropia | 805, 807 |
| Optometrists as Advertisers | 823 |
| Practical Photography | 809 |
| Reviews of Ophthalmological Literature | 795, 797, 799 |
| Societies | 813, 819, 825 |
| Wry-Neck and Spinal Curvature Due to Eyestrain | 821 |
| SHOW WINDOW, THE | |
| STATIONERY DEPARTMENT | 777 |
| TECHNICAL DEPARTMENT: | |
| Annual Clocks and their Working | 771 |
| Art of Engraving | 765 |
| Cleaning and Restoring | 767 |
| Gold Working | 769 |
| Instruments for Showing Standard Time all over the World at any Hour | 779 |
| Lessons in Horology | 761, 763 |
| Workshop Notes | 773, 775 |
| TERRIBLE TORPEDO, THE | 736 |
| TWEEDER'S TALKS, JOHN | 793 |
| WHEN MERCHANTS ARE ORGANIZED | 712 |
| WORLD-FAMED EXPERT IN PRECIOUS STONES | 783 |

Formal Opening of the World's Fair

IT is suggestive of this age of mechanical and scientific miracle-working that President Roosevelt, sitting in his office in Washington, on April 30th, opened the big fair at St. Louis by simply touching a golden button, thereby transmitting the electrical energy which started the greatest power plant ever constructed. The Louisiana Purchase Exposition is now an accomplished fact, and in coming months will be the Mecca of the myriad sight-seers of the world. We are safe in assuring our readers that there is no disappointment in store for them in this immense city of palaces, wherein are shown the collected marvels of creation. On the contrary, he who misses without good cause this magnificent achievement of human genius and effort has a poor conception of what is due himself, his kind or his country.

THE world has already had great expositions, but none probably with such unique historic significance as the big fair in St. Louis. As our readers know, it commemorates the one-hundredth anniversary of the acquisition by the United States from Napoleon I of all the land west of the Mississippi, north of Texas and, loosely speaking, east of the western slope of the Rocky Mountains. This vast area, out of which have been carved the Indian Territory and Oklahoma, and the States of Louisiana, Arkansas, Missouri, Iowa, Minnesota, Kansas, Nebraska, Colorado, Wyoming, the Dakotas, Montana and part of Idaho, was bought for the absurd sum of \$15,000,000. This treaty was signed and the purchase effected on April 30, 1903. This great exposition, a hundred years later, is an impressive manifestation of the importance of this most memorable of territorial bargains.

As far as size goes, the St. Louis Fair breaks all records. With its 1240 acres, the Louisiana Purchase Exposition is twice as big as the Chicago Fair, four times as big as the last Paris Exposition, and larger than the Columbian Exposition, the Pan-American and the Centennial combined. The approximate cost of the exposition is \$50,000,000, of which St. Louis furnished the respectable amount of \$10,000,000. Thirty-six foreign

nations are making displays—France, England, Germany, Mexico, China and Japan each spending half a million dollars. The efforts and enterprise of the commissioners have so far been magnificently successful; it remains for the public to do its part. It is doubtful whether any one now living will ever again have the opportunity to see an exposition so vast in size.

A Gold-Stamping Law in New York State

THE bill regulating the stamping of gold articles, which was introduced in the New York State Legislature as told in our February issue, has passed both branches of that body and at this writing only awaits the signature of the Governor to become a law. The bill was originally introduced in the Legislature in March of last year, but encountered such vigorous opposition that it failed of passage at that time. It was re-introduced in January of this year when it again encountered strong opposition, but with the influential and unflagging support of its friends and the incorporation of some qualifying amendments it was finally passed on the very last day of the session. The fact that the bill had the support of the most influential members of the trade, and was opposed mainly by the department-store interests, makes it especially interesting to our readers. As finally passed, its provisions are as follows:

The People of State of New York, represented in Senate and Assembly, do enact as follows:

Section 1. The penal code is hereby amended by inserting therein a new section between sections 364i and 365, to be known as Section 364j, and to read as follows:

Section 364j. Any person, firm, corporation or association who or which knowingly makes or sells or offers to sell or dispose of, or has in his, her or its possession with intent to sell or dispose of, any article of merchandise, constructed in whole or in part of gold or of any alloy of gold and having stamped, branded, engraved or imprinted thereon any mark indicating or designed or intended to indicate that the gold or alloy of gold in such article is of a greater degree or karat of fineness by more than one karat than the actual quality or fineness of such gold or alloy, is guilty of a misdemeanor.

A proceeding for the prosecution of a violation of this section shall be begun only by the issuance and service of a summons as herein provided. Upon any information against a person, firm, corporation or association for violation of this

section, the magistrate must issue a summons in substantially the form prescribed in Section 676 of the Code of Criminal Procedures, signed by him with his name of office requiring the person named in the summons to appear before him at a specified time and place to answer the charge, which summons must be served without arrest by delivering a copy thereof and showing the original to such person, or if such person be a corporation, by delivering a copy thereof and showing the original to the president or other head of the corporation or to the secretary, cashier or managing agent thereof. At the time appointed, the magistrate must proceed to investigate the charge, and, unless it shall appear to the magistrate upon such investigation that, at the time the person so charged made or sold or offered to sell or dispose of, or had in his possession with intent to sell or dispose of, the article of merchandise concerning which the charge is brought, such person had actual knowledge that the gold or alloy of gold in such article was of a degree of fineness less by more than one karat than that indicated by the mark stamped, branded, engraved or imprinted on such article, the charge must be dismissed.

Section 2. This act shall take effect January 1, 1905.

Our readers will notice that this measure does not make it compulsory to have gold articles stamped, but if articles *are* stamped a certain karat of fineness, it provides that such articles must assay at least within one karat of the fineness so stamped on them. The one karat provision was added to the bill on the representation that it was next to impossible to so gage the fineness that the manufactured article would assay with absolute exactness the karat stamped on it. The fact that the law applies only to those who *knowingly* make or sell is a protection against possible imposition.

The College Man in Business

WHETHER a college education is a help or a hindrance to the business man has been the subject of much disputation in the recent past. The latest contribution to the discussion comes from a prominent business man who thinks he has made a discovery which shows that college education is a sheer waste of time and opportunity as far as a mercantile or industrial career is concerned. He told how a recent issue of *Science* gave a detailed account of the bestowal of degrees for the summer of 1903, and a list of the theses on which the degrees were won. Among these were the following:

"Fertilization and Attendant Phenomena in *Asclepias* and *Acerates*."

"The Development of the Hybrids Between *Fundulus Heterocletus* and *Menithia Notata* with Especial Reference to the Behavior of the Maternal and Paternal Chromatin."

"Binary Families in a Triply Connected Region, with Especial Reference to Hypergeometric Families."

"Metabolism and the Reaction of Division in Protozoa."

"Derivatives of Tetrabromorthobenzoquinone."

"The Constitution of Oxyacids from the Thermochemical Standpoint."

"The Influence of Varying Strength Solutions of Formaldehyde on Some of the Enzymes of Animal Origin."

"A Study of Some Derivative of Meta-Diazo-Benzene Sulphonic Acid, and the Action of Certain

Alcohols on Asym-Meta-Diazo-Xylene-Sulphonic Acid."

"On the Embryogeny of *Ginkgo Biloba*."

"The Dehiscence of Anthers by Apical Pores."

"The Morphogenesis of *Platystrophia*; A Study of the Evolution of Paleozoic Brachiopod."

"Read these or try to read them," says the writer above referred to, "and find if you can what relationship they bear to business." No relationship whatever, and it is foolish to suppose that any of the graduates who wrote such theses contemplated a business career. Notwithstanding their sesquipedalian phraseology these subjects may be of very great importance in certain spheres of human activity and research, and all know that scientific development must go hand in hand with business development, for both are necessary to human progress. Our philosophic friend, Dooley, in a famous essay descriptive of modern industry and methods said: "A cow goes lowin' softly to Armour's an' comes out glue, beef, gelatine, fertylizer, celooloid, joolry, sofy cushions, hair restorer, washin' sody, soap, lithrachoor and bed springs so quick that while aft she's still cow, for'rard she may be anything fr'm buttons to Panyma hats." Who knows but that asym-meta-diazo-xylene-sulphonic acid is one of the chemicals used in these operations.

There's a place for the business man and a place for the scientist, and the right kind of college education will be equally beneficial to both. When old Gorgon Graham, the hero of "Letters from a Self-Made Merchant to his Son," was asked the question, "does college education pay?" he quickly answered: "Anything pays that trains a boy to think and to think quick; anything pays that teaches a boy to get out the answer before the other fellow gets through biting the pencil." Just so. If a young man is made of the proper material it stands to reason that a college education will help him to comprehend more vividly and to grasp conditions more quickly and thoroughly. True, the young graduate may be overflowing with theories and lofty ideals which are too far removed from mere business policy to be of very great value at first; but he will learn to adapt himself very speedily to more practical aims, especially if the business into which he enters embraces any educative elements; and when he becomes efficient in the details of a business he will naturally be stimulated to make greater strides toward perfection. The college course teaches him how to think and how to marshal his mental forces; and when he has mastered the elements of his business, his knowledge can be applied in its furtherance; his mind and character will then be strengthened, and he will be a vastly superior business man to what he would have been if he lacked the higher education.

A Wonderful Floral Clock

OF the many wonders shown at the St. Louis Exposition one of the most interesting to the jewelry trade will be the immense floral clock situated in front of one of the main entrances of the Palace of Agriculture. The dial of this unique clock is one hundred feet in diameter, and the larger of the two hands is fifty feet long and six feet wide. At this writing the clock is in course of construction, and will soon blossom forth in all its floral beauty.

We are familiar with the language of flowers, but their capability to tell the time will be news to many. The numerals marking the hours on this immense clock will be fifteen feet in length and made of bright colored crocus. In a circle surrounding the numerals will be collections of twelve distinct plants, each bed being twenty-five feet long and twelve feet wide. Nature has ordained that each of these plants should open its blossoms at a certain hour of the day, and the great floral clock will show how the laws of nature are as exact as the mechanical laws discovered by man. As the hands of the giant floral clock will reach the numeral naming a certain hour, the flowers in the great bed at the back of the hour so designated begin to open their buds.

The entire center of the face of the dial, the space inside the circle created by the numerals, and seventy feet in diameter, will be composed of alternanthera, a foliage plant which is commonly known as "Joseph's coat," because of its many colors, and encircling this immense bed of alternanthera, and separating it from the fifteen-foot floral numerals that mark the hour, will be a narrow band of centaurea, another foliage plant popularly known as the "Dusty Miller," which is a beautiful silver in appearance.

THE hands of the clock, which reached the World's Fair grounds last month, are made of a framework of steel, but wooden troughs filled with soil are provided, and in these troughs myrtle, ivy and other creeping green plant will grow luxuriantly and completely conceal the supporting framework.

Another connecting link between the present and past in horology, to be shown in connection with the floral clock, is a mammoth hour glass placed on the pinnacle of an ornate tower. This glass is made of the heaviest and clearest crystal, with the receptacles for holding the sand, each six feet in length and four feet in diameter at the base. The hour glass is to be so suspended that when the sand is spent the glass automatically reverses itself and another hour is being told off. The hour, at the same time, will be tolled off on a five-thousand-pound bell.

Marvelous Wealth and Munificence

THE latest and most unique manifestation of millionaire munificence is Carnegie's gift of \$5,000,000 to endow a heroes' fund. It may take a committee of experts to decide what constitutes a real hero, but this has nothing to do with the generosity of the gift. As a dispenser of wealth for purposes designed to elevate humanity and confer lasting benefit Mr. Carnegie has established an unprecedented record. Since he began the distribution of his vast fortune he has given away in all over one hundred million dollars. Some of the excellent purposes for which the money was donated are shown in the following list:

| | |
|---|---------------|
| Carnegie Institute, Pittsburg | \$7,852,000 |
| Polytechnic School, Pittsburg | 2,000,000 |
| Employees' Pension Fund, Pittsburg | 4,000,000 |
| Carnegie National University | 10,000,000 |
| Dunfermline endowment | 2,500,000 |
| Scotch universities endowment | 15,000,000 |
| Libraries in the United States | 27,765,000 |
| Libraries in foreign countries | 4,651,750 |
| Peace Temple at The Hague | 1,500,000 |
| National Engineering Societies | 1,500,000 |
| Heroes' Fund | 5,000,000 |
| Unclassified gifts in the United States | 16,982,373 |
| Unclassified gifts, foreign | 1,250,000 |
| Total | \$100,001,123 |

It is said that Mr. Carnegie is a thoroughly happy man, and humanity will not grudge him this return for his more than princely largess. His career has been a unique one from the beginning, but no development in it departed more from the established standards than his determination to make good his famous epigram that to die rich is to die disgraced.

Proposed New States

THE Republican majority of the House Committee on Territories last month reported in favor of the bill to admit Oklahoma and Indian Territory into the Union as the State of Oklahoma, and New Mexico and Arizona as the State of Arizona. The Democratic minority of the committee recommended the admission of the Territories as four separate States. The Republican measure was subsequently passed by the House, and though it is not likely to get through the Senate at this session, it is now certain that the Territories will soon be admitted to statehood either paired or singly.

Arizona seems to have very decided objections to being incorporated with New Mexico, the chief argument being that the combination would be too unwieldy for the proper administration of public affairs. Nor is the contention unreasonable. Arizona has an area of 113,000 square miles and New Mexico 122,469 square miles. If admitted as one State it will have an area of 235,469 square miles, or 30,311 square miles less than Texas. In June last year the population of New Mexico was estimated at 284,000,

and that of Arizona at 160,000; and this disparity appears to be one of the most vital bases of Arizona's opposition to united stateship.

Territorially Oklahoma and Indian Territory would seem to make an ideal combination. In their climate and resources they are largely identical, both being exceptionally favored for wheat, maize, cotton and stock-raising. Oklahoma has now a population of 650,000, and is being developed at a marvelous rate. Indian Territory, on her eastern and southeastern borders, would nearly double the area of the State, giving it 70,430 square miles, a little more than the area of Missouri.

THE KEYSTONE has a host of enterprising and appreciative subscribers in all four Territories, and will be happy to join in the welcome to the new States.

America's Central Position

THE fact that the war news hereafter from Asia to Europe will pass through the United States evidences at once the central position of this country in relation to the nations of the earth and its ever increasing prominence in international affairs. It is a suggestive fact that all the war news collected by the great European news agencies—British, French, German, Italian and others—is now transmitted to London by way of America's Pacific cable and the United States, and is being delivered on the way to the American newspapers. Until a few weeks ago all this matter was sent by way of India to London and was repeated from that point for New York. Under the new arrangement the United States gets the news before it reaches Europe. Hereafter New York instead of London is to be news clearing house for the world for intelligence from the Russo-Japanese war. Nicholas II will be able to get word from the seat of war quicker by way of the United States than he will by way of Siberia or any other Asiatic route, and the people of St. Louis, New York, Chicago and San Francisco will learn earlier about the movements of Russian troops in Manchuria than the Czar himself.

Commenting on this latest development the St. Louis *Globe-Democrat* says: "Columbus sailed to the west in order to get to the East. England, Russia, Germany and the rest of Europe reverse this process in getting news from the opposite point of the compass. In each case the longest way round is the shortest way home. Measured across meridians, the distance between London and Port Arthur is much shorter by the Asiatic route than it is by the American, but the latter has advantages in quickness and

certainty of communication which more than compensate for the greater distance in miles. The difference is still greater in the case of Berlin, Paris, Rome and St. Petersburg. Nevertheless, the United States will be the route hereafter for the transmission of the news between those big contiguous continents of Europe and Asia."

The Centenary of the Locomotive

IN 1804, just one hundred years ago, George Stephenson was earning four dollars a week toiling in Killingworth Colliery in England. It was while working here that he constructed his first locomotive, and brought into existence the greatest developing and civilizing agent ever invented. A casual visit to the great locomotive works of Philadelphia, a few weeks ago afforded the writer a most impressive object lesson on the progress of locomotive construction in the past hundred years. There we saw in process of construction what was truly described as the largest locomotives the world has ever seen. While we were contemplating with awe one of these traction monsters we were told that the earliest locomotives weighed from one to ten tons, and that the particular one on which we were gazing, when completed, would weigh 480,000 pounds, or 240 tons, 280,000 pounds representing the engine and 200,000 pounds the tender. These locomotives are being made for the Atchison, Topeka & Santa Fe Railway.

Fifteen tons, at a speed of five miles an hour, was the capacity of the first locomotive in England, and comparatively little advance was made in the next dozen years after its appearance. Peter Cooper's one-ton "Tom Thumb," which was put on the Baltimore & Ohio road in 1830, could carry only a little more than this, but it could make slightly better speed. Each of the locomotives which are being built for the Atchison road will be able to draw 6000 tons of dead weight on a level grade at the rate of twenty-five miles an hour. The progress in railroad construction is correspondingly impressive. History records that back in 1827 the Honesdale & Carbondale Railway sent to England for a locomotive, and purchased the famous old "Stourbridge Lion." Though this engine weighed only six tons it was found to be too heavy for the wooden rails with strips of iron nailed on them, and on this account could be used only to a limited extent.

Need we add as a matter of interest and pride that to-day the United States has a greater railway mileage than all Europe, and that our railways give employment to a full million of our best-paid workers.

Seamless Plain Gold Rings:

2200K We guarantee that in buying our rings you get full value for your money.

1800K Each and every ring will assay as well and frequently better than it is stamped.

1400K Another line that will show such uniformly true values as ours is hard to find.

1000K In shape and finish our rings leave nothing to be desired.

A catalogue illustrating the shapes and giving the weights and prices will be sent on request.

Hayden W. Wheeler & Co.

2 Maiden Lane, New York.

Telephone, 8 Cortlandt.

E. Howard & Co. Watches:

Jewelers can safely recommend the 1903 Howard model as the finest of modern watches, for its mechanism is as near perfection as has yet been attained.

It fits any regular 16-size case, but really warrants as handsome a case as one of our special hand-made cases.

Give some of the Howard booklets to your trade so they may know of the superiorities of the watch and see the beauties of our cases.

Too Much "Very"

SAY the best for your goods that they deserve; but do not *exaggerate* their merits.

Exaggeration may "land" the immediate customer and effect the sale; but the salesman thereby may spoil the prospect for a *future* sale to that same customer.

The eagerness to make the sale in hand too often blinds the salesman to the effect of over-statement.

It is a serious mistake to everlastingly speak of your goods in superlatives.

The wise merchant appreciates "the strength of the positive degree."

All of your goods are not "the very best." All cannot be indiscriminately praised. There must be an exercise of caution, in stating the comparative worth of goods.

That merchant makes the strongest bid for the continuous confidence of the community who is habitually conservative in his statements and is sparing in the use of "very."

There is an immense advantage to you if your goods *surpass* expectations: There is corresponding loss to you if they fail to make good your promises for them.

The whole effort of the jeweler should be to secure the public's confidence. In no other line of trade is confidence so large a factor in success as with the jeweler. It is as much a part of his moral capital as it is of a banker's moral capital. It is the vital ingredient in whatever there is of the store's good-will.

When a shopper sets forth to buy clothing, or groceries, or house furnishings, she banks largely on her own knowledge of values; she goes on her faith in her own judgment. But when she buys a diamond, or such a marvel of intricate machinery as a watch, or anything in gold or silver, she goes by her faith in the *jeweler*. She feels that she is out of her depth; she *must* trust to some one else's guidance.

Human nature is such that we are always skeptical of a braggart. Shakespeare voiced the universal attitude toward the "very" man when he said, "Thou dost protest too much."

The merchant who is given to exaggeration eventually subordinates himself, in his own store, to his goods. That is, buyers will begin to take their own judgment to the store and the merchant's statements will be discounted; the goods must make their own appeal.

On the other hand, the merchant who speaks as well, but no better, of the goods than they deserve can eventually say the strongest thing for his goods when he says,

"I consider them safe for me to sell." He is thought to be the best thing, in himself, in his store; the buyer buys because of her belief in this *merchant*.

The merchant who puts himself into this relation to his customers is not a "very" man; does not exaggerate qualities; always keeps within the limits of a conservative statement. And by the very nature of his status, he sells only the best goods; because his own security lies that way.

He justifies his goods; his goods justify him.

The V Between Your Eyebrows

MERCHANTS should always keep in mind the instructions of the photographer, "Now, look pleasant, please." That *worried* look on your face is not a good introduction to the sale.

People like to deal with those who show a bright and cheery countenance. It inspires confidence; carries a conviction of prosperity; is helpful in its psychological influence on the buyer, in many ways.

The V between your eyebrows, and the strained manner which generally goes with it, are interpreted variously by the customer. This interpretation does not always shape itself into definite thought, but the thought certainly exists in the sub-consciousness of the customer. "Is his trade falling off? Is his competitor getting the business? Does he doubt whether his goods are what they ought to be? Would I do better to try the other store? At least, wouldn't shopping be a more *cheerful* experience at the other store?"

The merchant with the worried look is handicapped. The other chap, with a smooth brow and a smiling face, advertises himself as at peace with all the world; satisfied as to the integrity of his wares and the correctness of his prices; getting ahead and making money; having nothing to worry him in the attitude of the public toward his store. People like to deal with those who seem *happy*. There's a contagion in cheeriness and the smile on the inside of the counter carries a certain fraternal influence to the one outside the counter.

The writer once overheard a remark by one of two ladies, on leaving a shoe-store, which impressed him. Said the one to the other, "Isn't Mr. Warnock a *comfortable-looking* man? I declare, he's always a cure for my blues!"

Get down to the little influences which determine the public's favor, and you will find that the "comfortable-looking" merchant has *in himself* the reasons for the selection of his store as against another store by a very considerable number of buyers.

No, this is *not* weighing bubbles, or mere casuistry—it *is* worth while! Take the V from between your eyebrows; smile once in a while, though you nearly dislocate your jaw in the first attempt; be cheery; show a confident and sunny countenance; don't "knock," either in vocal speech or in the speech of facial expression; "look pleasant, please;" and thereby you will hold some trade which otherwise is *sure* to go to your "comfortable-looking" competitor.

"Vell, Commence!"

THE story is told of a German who, knowing nothing whatever of the management of horses, secured the position of driver of an express wagon.

Mounting the seat for the first time, and ignorant of the customary "g'wan!" or "git ep!" he picked up the reins and said, "Vell, commence!"

The trouble with many really bright merchants is that they don't *commence*. They theorize as to when and how to do the thing which will bring them success; they plan the details, consult their friends, inquire here and there—and then go to pieces when it is time to take the center of the stage and *do* the thing. Their nerve leaves them; they fiddle-faddle; they back and side-step. They should heed the German:

"Vell, commence!"

It is nearly as bad to be chicken-hearted as to be foolhardy. It is almost less creditable.

To back down, at the time you should go forward, is more disgraceful than to plunge ahead too soon. The fellow that goes off at half-cock has at least some exercise and tries his nerve; the other gains nothing in experience and is worse for the next occasion of opportunity.

You will never accomplish anything by dreaming. You've got to get into the scrimmage if you would get nearer the goal. The best kind of theorizing is that which comes *after* the first blind attempt; for then one knows a thing or two, and his future theories are based on experience. The man who makes no beginning gets no farther. "Commence," even if you slip and flounder around and fall; you will have discovered what *not* to do to keep your footing; and that is a distinct gain. There may be many a hard bump ahead for you, and skinned knees, and torn clothes; but by and by you will have learned to balance yourself; then, to step out confidently; then, to go fast. The dreamer, standing on the curb and criticising your efforts, must *stay* there; and you can call to him derisively,

"Vell, commence!"

"A REMINDER"



TO THE TRADE:

We have a number of times called your attention to

The Gorham Silver Polish

and its merits as the best article in the market for cleaning and polishing Gold, Silver and Glassware.

We have particularly mentioned that it bears the name of Gorham—a synonym of excellence and knowledge as to silverware and its care.

You have possibly—quite probably—said, "I will order some of it." It is very possible that the thought and cares of other matters have driven it from your mind. This "reminder" is to call

The Gorham Silver Polish

to your attention, and remind you that there is nothing manufactured to-day so efficient, economical and satisfactory for the purpose intended

GORHAM M'F'G CO.

Silversmiths,

BROADWAY AND NINETEENTH STREET, NEW YORK.

BRANCHES:

CHICAGO,
131-137 Wabash Avenue.

NEW YORK,
21-23 Maiden Lane.

SAN FRANCISCO,
118-120 Sutter Street.

WORKS: Providence and New York.

Exchanging Goods and Refunding Money

WE have before us a letter from a jeweler in which he denounces in strong terms the "money-back-if-not-satisfactory" doctrine, as applied to the jewelry business. "A sale is a sale," he says, "and when goods are once sold there is no reason why they should be brought back and exchanged." There has unquestionably been much abuse of the "money-back" system, and in practice it should be carefully and wisely regulated; but, as a certain statesman remarked, "it is a condition and not a theory that confronts us." A sale is a sale, and there is, of course, no legal compulsion to exchange the goods or take them back and refund the money, but it is very often good policy to do so. The liberality of the department store in this regard is undoubtedly one of its great claims to public favor.

A very striking case in point came under the notice of the writer during the holiday season last year. A gentleman was purchasing a twenty-five dollar opal ring with triple setting, in the jewelry department of a big Philadelphia department store. He said to the salesman, "I myself don't know anything of the value of a ring of this kind, and will have to trust your good faith in the matter." "To thoroughly satisfy you," said the salesman, in response, "I'll tell you what I'll do. It's now two weeks to Christmas. You buy this ring, and if you can find in the meantime in any store in the city a better ring for \$25 you can come here and I will take this ring back and refund the money." Did this customer go hunting for a better ring for the money? No. What the salesman said had thoroughly reassured him. The impression left by the offer to take back the ring did its work promptly, and the customer's confidence was no doubt secured for all time. Had the salesman not done what he did, the customer would in all probability have hunted around to find out whether he had been imposed on, and some one might have been cruel enough to tell him he was. It's a good deal like guaranteeing work at the bench. The work may be no better than non-guaranteed work but the fact that the house is willing to back it up by a signed document reassures the customer. No one will have faith in a store which has no faith in itself, and proof that it has such faith always clinches the confidence of the patron. The money-back-if-not-satisfied offer may or may not be bluff, but it leaves an impression which the department store has found very advantageous to it.

Many jewelers, in advertising and selling diamonds, attract purchasers by offering to buy back the stones in one year at a reduction of five per cent. Such an offer

leaves a good impression, and now-a-days when diamonds are advancing in price, the offer may be very safely made. It bears out the jeweler's contention that diamonds are a safe investment, and convinces customers that they are incurring no risk in making the purchase.

Healthy Rivalry Among Clerks

AN intense rivalry, such as would embitter clerks against one another, is not desirable; yet a certain amount of out-in-the-open rivalry is healthy, both for the business and for the clerks themselves. In department stores where there are many clerks such rivalry is cultivated by the employers, and the methods adopted to this end are not uninteresting to the jeweler.

Some stores excite this rivalry between their clerks by publishing the comparative sales of each. A list is made, the position of honor striven for being, of course, at the top. The list is hung conspicuously in the coat-room or some other place frequented by the clerks. This list is published every Monday morning, and is the shrine at which new resolves are offered each week.

In other stores slips are handed to each clerk on Monday morning containing the amount of his sales for the past week, in contrast with the amount of his weekly sales for the corresponding week last year. If the clerk is new to the position, he is given the amount of sales credited to his predecessor the year previous.

In other stores last year's sales are accepted as a standard of 100, and the sales for the corresponding period of the present year are estimated in percentages by this standard of 100. An increase over last year of 25 per cent. would show as 125 per cent.; while a decrease would show as 75 per cent., or more or less as the case might be. In this way actual figures are not furnished.

Such comparisons of results will naturally cultivate in a young man an ambition to increase his percentages. They will also have a good effect on the laggard, inasmuch as he will know that if he falls behind or keeps at a standstill the fact will be known to his employers.

Such rivalry, however, as would create discord would defeat its own object. Harmony is necessary to the smooth working of the political machine, and the jeweler should keep his eye open for friction. Little impositions that some thoughtless clerks will perpetrate on their companions, and that seldom come under the eye of authority, may amount in the aggregate to quite serious evils. See that your clerks act fairly toward one another; their differences affect your business.

A Jewelers' Parcel Post System

THE article in our last issue entitled "Small Storekeepers and the Parcels Post" aroused much interest among the trade, judging by the number of letters received. These communications show the bulk of opinion as strongly opposed to the parcels post, and yet we were somewhat surprised at the number of jewelers who believed that the system would operate to their advantage. Probably the most instructive letter received on the subject was the following from an enterprising jeweler of New York State:

ED. KEYSTONE:—In regard to the editorial "Small Storekeepers and the Parcels Post," which appeared in your April issue, I would state that in my opinion the proposed bill, if it becomes a law and is administered properly, will be a benefit to jewelers. Of course, I cannot speak for merchants in other lines. I have adopted a rural delivery scheme of my own, which may perhaps interest your readers. I keep three rural men who cover a radius of about four miles of the surrounding country. They have the necessary right to carry merchandise outside of the mail, and I have made these rates with them:

No package to cost less than one cent for carrying each way.

Rates for packages from four to twenty ounces, one-half a cent per ounce.

Common mantel or wall clocks, 15 cents one way, or 25 cents for delivery to me and returning.

Common alarm clocks, 10 cents, or 15 cents both ways.

I sent out a letter, neatly printed, explaining the scheme and giving a list of prices on repairs. This letter stated that in case any customer wanted to make a purchase he or she could write me, and I would send on memorandum a selection of the goods required. Whenever possible I return, the day after receiving them, articles sent in for repair. For this purpose I use large envelopes, on which suitable advertising matter is printed. I send a smaller one for the conveyance of repair jobs, and this, too, contains ads., together with my name and address in the usual form.

I find this system a good one, and when I get it working to full satisfaction I contemplate selling space on the envelopes to other merchants in the town. The personal communication with the people gives me a chance of enclosing several different ads. printed in circular form, and these are effective as a means to "follow up." If possible, I may get up a small trade paper, to be issued every month or two and sell advertising space in it to other dealers. You see the scheme can be adopted in a number of different ways, and if it can help any other jeweler I am glad to tell of it through THE KEYSTONE. The point which I now want to bring to the attention of your readers, is that the Parcels Post bill provides for a rate of one-quarter of a cent on sealed packages, and that is really cheaper than the rate I am paying under my own arrangement.

Yours truly,

Clifton Springs, N. Y.

J. R. HAYDEN.

This letter goes to prove the wisdom of taking advantage of every opportunity that offers, and evidences the possibility of turning almost every happening to advantage. Many of the trade merely grumble at changing conditions and make no effort to adjust their business to the changes. The motion of the earth and the progress thereon will not stop at the behest of the grumblers, and the logical thing to do is to buckle down to business and make the best of conditions as we find them.

When Merchants are Organized

THE modern organization is an institution of many activities. Its catalogue of duties includes the protection of the members, the suppression of abuses, the advertising of the town, the development of the local trade, the furthering of municipal improvements, insurance and many other eminently worthy objects. In Harrisburg, Pa., there is an excellent type of the local association, and its list of achievements is already an imposing one. The nondescript peddler has been largely eliminated, profitless competition is being reasonably regulated and multifarious other beneficent ends have been attained or are in process of attainment. So it is in many other towns and cities. Over in England where the jewelry trade is well organized, the secretary of the National Association of Goldsmiths recently issued the following notification to members:

Arrangements have been made with an insurance corporation of the highest repute and with ample guarantee, to enable members of the National Association of Goldsmiths to obtain special burglary and fire insurance policies upon very favorable terms and at low rates. All trouble and formalities in the effecting of insurances of this class have been reduced to a minimum, the corporation's policies have been framed to meet the special requirements of the trade in a liberal and comprehensive manner, and specimen copies, together with particulars of the rates of premium, may be obtained upon application to me.

THIS circular reveals one of the uses to which organization may be put, and there are others without number. The Business Men's Association, of Elkhart, Ind., has formulated a new plan for handling bad accounts that have been contracted, and guarding against them in the future. The merchants and professional men who extend credit are forming a stock company, and will issue common and preferred stock. Each member will pay cash for one share of preferred stock, worth \$25, and is guaranteed six per cent. interest on his money. The common stock includes all the old accounts of the firms in the company. Whenever any of these accounts is collected it will be credited to the merchant to whom it belongs. At the end of the year the company will pay a

dividend from the accounts collected, the dividends being based on the amount of the claims. A rating book will be compiled, and no person listed as poor pay can get credit from any member of the association, unless he gets the consent of the secretary of the stock company. Of course, the secretary will not give his consent unless he has ample assurance that the debt will be paid.

A novel departure was a joint voting contest by the merchants of Waxahachie, Texas. They purchased a good library, to be given to that institution, fraternal, educational or charitable, securing the highest number of votes. Each ten-cent purchase made of any of the firms entitled the customer



The Fine China Store of Vollmer & Co., Los Angeles, Cal.

to one vote. The voting was regulated by a well-framed set of rules and aroused great local interest and rivalry. All such schemes militate for the public good and materially help along business.

LOCAL associations of merchants are the order of the day, and the jeweler should be as prominent and energetic in these organizations as the grocer or the hotel keeper. It should be unnecessary to impress on business men the necessity of working together for the good of the town. Indeed, all of them believe in it as a principle, but when it comes to putting the thing into practice, their hatred of the fellow down the street often handicaps the work and in the end actually damages the general trade interests of the town. Co-operation among the merchants of a town is an essential of progress. If they can agree on nothing else they ought

to agree that more trade for the town is what they want and they can afford to lay aside their prejudices for a time and all pull together as a business proposition. The organizations of merchants into associations has overcome much prejudice. Competitors meet face to face and shake hands now where in some instances not many years ago they were sending each other messages of bad will by the grape-vine route, a route superintended by some customer who had a financial interest in keeping up hostilities. The trade association proves to each merchant that this competitor is not such a bad fellow after all, that there really is some good in him, and that he can pull with him for the general

good of the town without losing any of his self respect. There are many towns where the merchants do co-operate. They are marked towns. They are known in their particular section for harmony and hustle of their business men. That in itself is good advertising. It makes business. Every man in them is talking for his town. He is praising its stores, the big stocks carried and the enterprise of the merchants, and such an amalgamation of harmony, enthusiasm and enterprise is a business magnet of irresistible power. It is regrettable that the jewelers are so slow to forget old-time

business antagonisms. Merchants in other lines seem to take much better to organization, and the associations of grocers, hardwaremen and pawnbrokers are many and influential. There are still comparatively few retail jewelers' organizations, though in no branch of business is organized effort so necessary. We are pleased to notice a more friendly feeling, however, and several new societies are the result.

AN Indianapolis merchant recently had a "Violet Day" at his store. One of the large display windows was filled with the flowers. All kinds of attractive vases and flower holders were used to show off the beauty of the flowers and incidentally to call attention to their own merits as pieces of table decoration. Articles of violet color or with violet decoration were shown in profusion throughout the store.

BERGEN POPULAR-PRICED CUT GLASS

Supplement Sheets, illustrating new additions to BERGEN POPULAR-PRICED CUT GLASS, now ready. Sent for the asking.

If you intend visiting the St. Louis Exposition this year, take advantage of our hospitality there. A week's accommodation without charge for our friends and customers. FULL PARTICULARS ON REQUEST.

The J. D. Bergen Co.

Main Office and Showrooms:

38 Murray Street,

Chicago:
Silversmiths' Building.

NEW YORK.

ELECTROTYPES for local advertising free to customers.

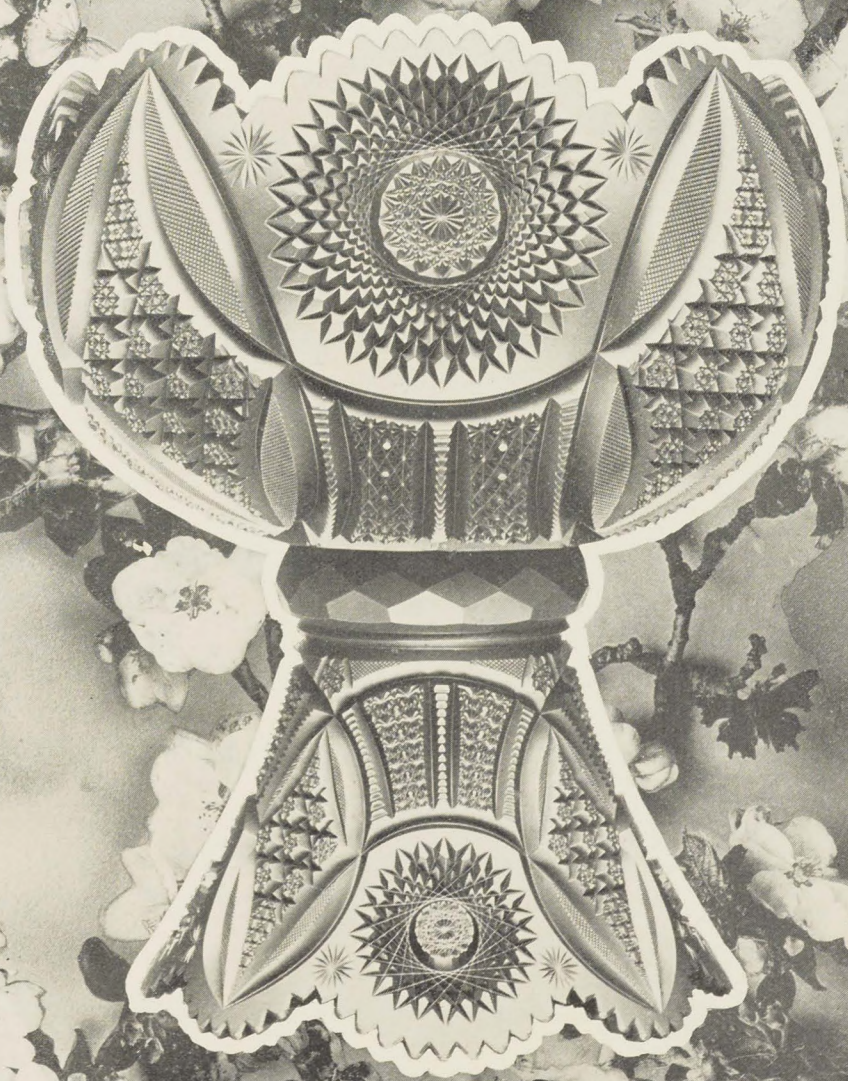
CATALOGUE (80 pages, fully illustrated) for the asking.

Pitkin & Brooks

makers of

Rich Cut Glass

Chicago.



NO. 1. 14 IN.
MAYFLOWER
FOOTED PUNCH BOWL

BINNER WELLS
CHICAGO

We make goods that Sell: Examination
of a trial order will explain Why.

FOUNDATION STONES

FIVE · DECADES · OF · SUCCESS.

GREAT STRUCTURES *require strong foundations.*
This holds good in business-building. Over half a century of progress
could only be founded on principles that are sound and deep.



ESTABLISHED 1852.

THE BED ROCK *on which this business has been built is "character"*
—the character of the Glass, the character of the designs, the character
and reputation of the house. This character
means continued progress.

C. DORFLINGER & SONS,

36 MURRAY ST.

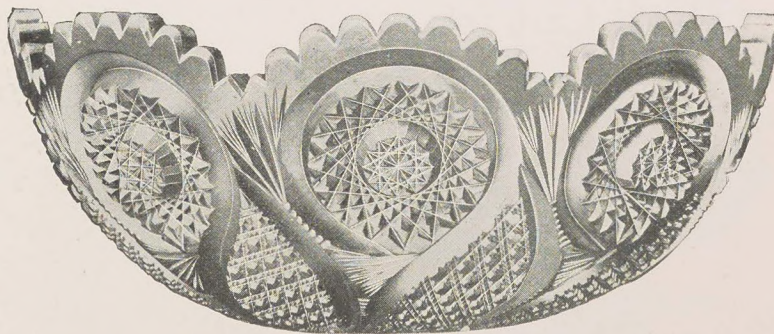
NEW YORK.

THE A. L. BLACKMER CO.

(Established 1892.)

New Bedford, Mass.

NEW YORK OFFICE,
 32 Park Place,
 Rooms 15 and 16.



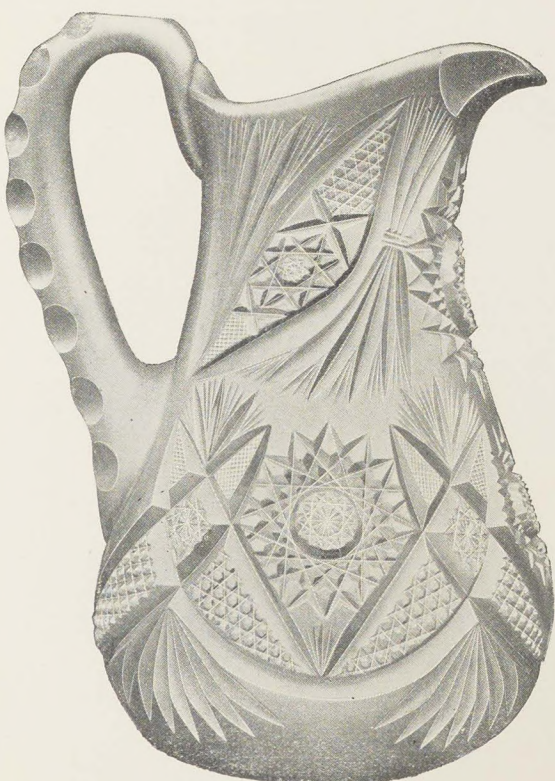
No. 125 Bowl, Iris.

Rich Cut Glass.

Our Claims

New and Original Patterns,
 Superior Finish, Moderate Prices,
 Promptness in Shipping.

A large and well conceived line particularly
 adapted for your trade. **TRY IT.**



No. 271. 3 pt. Jug, Portia.

Manning, Bowman & Company, Meriden, Connecticut.

Nickel and Silver Plate.

New York.

Chicago.

San Francisco.

London.



No. 308. SECTIONAL VIEW.

When the water is drawn from the faucet (causing the water in cold water reservoir to be lowered), it immediately refills with water from glass reservoir, and therefore is automatically kept full until all the water in glass reservoir is used.

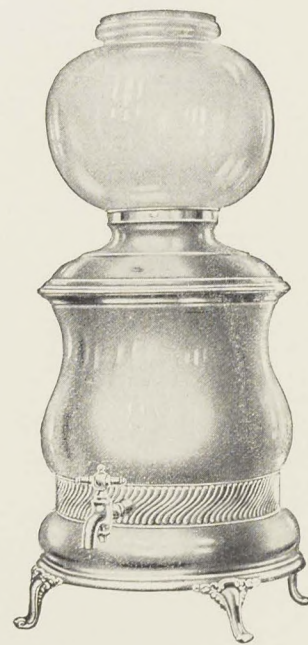
Chafing Dishes. (With Patent "Ivory" Enamelled Food Pan.)
Prize Trophies, Tankards, Etc. { English Pewter and Copper, Pewter Mounted.
"Meteor" Circulating Coffee Percolators, Etc.

M. & B. "ALPINE" WATER COOLERS.

Wherever the "ALPINE" Hygienic Cooler is used, one can drink any of the celebrated pure spring waters with the assurance that it is just as pure, cool and fresh as if taken directly from the spring.

It is constructed with a crystal glass water reservoir, porcelain-lined cold water reservoir and separate ice chamber. It is so arranged that the ice cannot come in contact with the water. The outer shell is double walled and packed with a non-heat conducting material and therefore is the most satisfactory, economical and convenient Water Cooler made.

Send for Circular No. 86 K, illustrating Complete line.



No. 408. 8 quarts.

Nickel or Silver Plated.

Patents Pending.

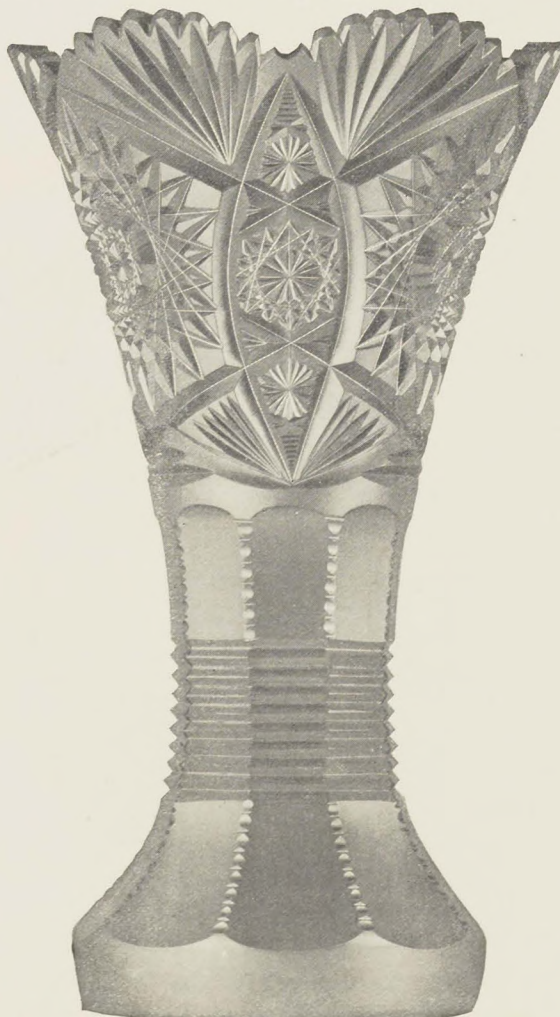
THE PAIRPOINT Rich Cut Glass.



No. B4704. Berry. Design pat'd.
Deco. No. 741.

B
R
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S

38 Murray St., New York City.
220 Sutter St., San Francisco, Cal.
Temple Bldg., Montreal, P. Q.
Factories, Etc., New Bedford, Mass.



No. 1036. Vase—" ORCHID."

CORPORATION. Superior Silver Plate.



No. 380. Swing Kettle. Pat. appl'd for.

Photograph Books of our Complete Lines
loaned to the trade for inspection.

"Look through the world,
'Tis ne'er met with elsewhere."

717

T. B. Clark & Co., Inc.

Rich Cut Glass

June is a favorite month for weddings; and the dealer in giftware must not only consider those which will take place during the coming month, but also that it will be an anniversary of the weddings of June of other years. A remembrance selected from the Clark line is always appropriate and sure of appreciation



312. Jug—Harvard.

T. B. CLARK & CO., Inc.,

Honesdale, Pa.

Represented

{ NEW YORK—J. D. Dithridge, 25 West Broadway.
SAN FRANCISCO—J. A. Young, 115 Kearny St.
BOSTON—H. T. Edwards, 146 Franklin St.

OHIO CUT GLASS COMPANY

BOWLING GREEN, OHIO.

Original
Designs

Superior
Finish

Prompt
Shipments



No. 302. Jug—Fern.

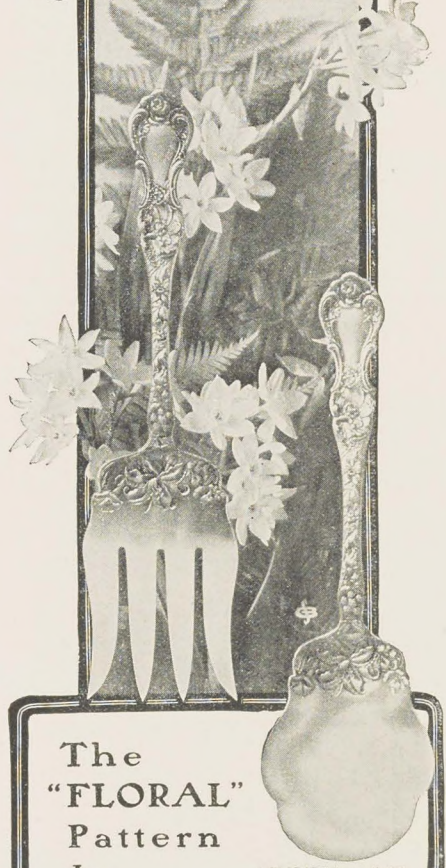
New York Salesroom,
66 W. Broadway.

Chicago Salesroom,
Silversmiths' Bldg.

St. Louis Salesroom,
Holland Bldg.

We would be pleased to have you make your headquarters at our St. Louis office when you visit the World's Fair.

TRADE MARK
"1835"
R. WALLACE



The
"FLORAL"
Pattern
In

"1835 R. WALLACE"

Silver Plate seems like Sterling Silver because of the exceptionally delicate workmanship and French Gray finish. It is heavy, too, and has unequalled wearing qualities.

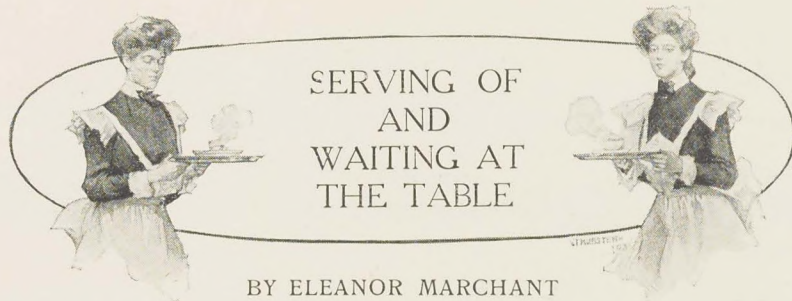
79 "Floral" pieces made in all, including spoons, forks, knives and fancy pieces.

Ask Your Dealer

For ten cents in stamps we will mail our book, "How to Set the Table," written by Mrs. Rorer, and illustrated with pictures of tables set by her.

R. WALLACE & SONS MFG. CO.
Dept. M, Wallingford, Conn.

THIS IS AN EXACT
REPRODUCTION OF
PAGE 894 OF THE
MAY DELINEATOR.



SERVING OF
AND
WAITING AT
THE TABLE

BY ELEANOR MARCHANT

V.—SERVING A DINNER OR LUNCHEON WITHOUT A MAID

THE young housekeeper doing her own work is apt to settle down into a dreary routine of domestic duties, honestly believing that until her financial matters improve she must not incur social obligations and that the grace of

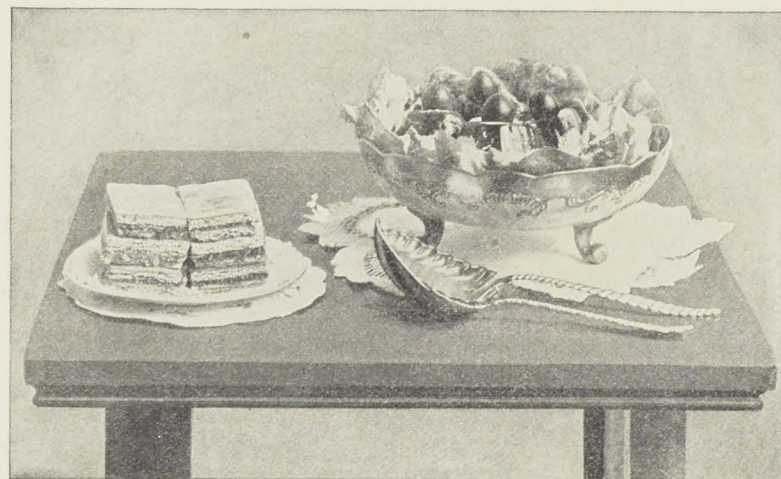
than one large one, restricting the number at each to six persons. As the hostess must be both cook and waitress, the arrangement must be carefully thought out and the menu planned in advance. Nearly all the preparation may be ac-



AN INDIVIDUAL COVER FOR A DINNER SERVED WITHOUT A MAID.

hospitality is denied her. This is a mistaken idea. The young housekeeper must remember that congenial guests, a simple menu of delicious viands daintily served and a bright, attractive hostess thor-

oughly accomplished the day before. Extra silver that may be required should be washed and polished ready for use, the linen, consisting of dinner-cloth, napkins, centre-piece and doilies should be carefully



THE SALAD COURSE READY TO SERVE.

oughly at her ease are the main essentials of a successful dinner party.

If you are desirous of entertaining friends at dinner, it will be the wiser plan to have three or four small dinners, rather

examined, that their surface may be spotless, and if candle-lamps are used in the candlesticks or candelabra, they can be filled, the wicks trimmed and the chimneys washed. Flowers and candle-shades

Our 100-line advertisement above practically amounts to a full page in the best woman's magazine published. The Delineator is read by over a million well-to-do housekeepers, and what woman, reading the article on serving a dinner and being attracted by the appetizing illustration of the salad course, would not instinctively turn to our advertisement of the Floral Salad Set?

And we tell her she can obtain this Floral tableware OF HER DEALER.

Are you benefiting by this advertising? If not, let us send you our catalogue No. 90 K with quotations.

R. WALLACE & SONS MFG. CO., WALLINGFORD, CONN.

New York.

Chicago.

San Francisco.

London.

TRADE **"1835"** MARK
R. WALLACE

**GIVE
THE
BRIDE**

A Set of

**"Floral"
Silver Plate**

and she will be as proud of it as of
sterling silver.

- It has all the delicate finish and workmanship of sterling.
- It is heavy and rich and of unequalled wearing qualities.
- It bears the stamp **"1835 R. WALLACE,"** which means everything on plated ware.

ASK YOUR DEALER.

For ten cents in stamps we will mail our book, **"How to Set the Table,"** written by Mrs. Rorer, and illustrated with pictures of tables set by her.

R. WALLACE & SONS MFG. COMPANY, Dept. M,
New York Store: 226 Fifth Ave. Wallingford, Conn.

SOUP SPOON.

BUTTER KNIFE

DESSERT FORK

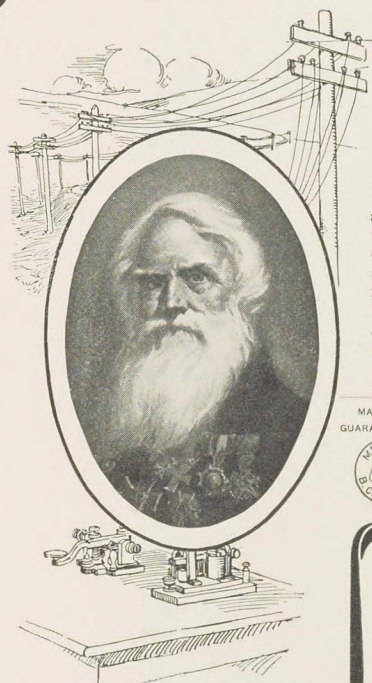
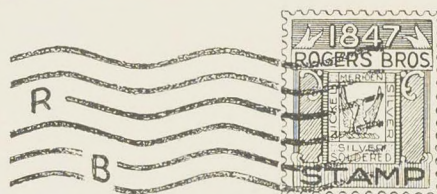
The above advertisement will appear in the June Delineator and Ladies' Home Journal, occupying 200-line space. It will also occupy full pages in the June Harper's Bazaar, Boston Cooking School Magazine, Good Housekeeping and Metropolitan Magazine.

This advertising helps us by assisting you as our customer to sell our goods.

Don't you think it would pay you to put in a line of the Floral pattern? We have increased our facilities and are prepared to fill all orders.

R. WALLACE & SONS MFG. CO., WALLINGFORD, CONN.
 New York. Chicago. San Francisco. London.

PROFESSOR S.F.B. MORSE



Professor Morse in 1847 saw the fruition of his labors in the perfected telegraph and received many marks of distinction honoring the great invention. This was also the year of the wonderful application of electricity by ROGERS BROS., who originated the process of electro-silver plating.

"1847 ROGERS BROS."

as the goods are now known were first made in a very small way in plain spoons and forks, but to-day the line comprises everything that can be desired in the way of knives, forks and spoons in fancy as well as staple pieces. A few examples are illustrated on the reverse of this card. Jewelers handling "1847 ROGERS BROS." goods sell a brand which half a century of experience has brought to perfection. Made only by the successors to Rogers Bros.

MERIDEN BRITANNIA CO., MERIDEN, CONN.
(International Silver Co., Successor.)

MADE AND
GUARANTEED BY



NEW YORK CHICAGO HAMILTON, CANADA

HOLLOWWARE
TRADE-MARKS



NICKEL SILVER
W. M. MOUNTS

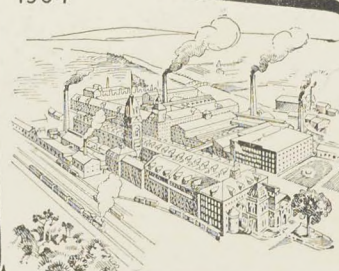
HOLLOWWARE
TRADE-MARKS



FACTORY
IN
1847



PLANT
IN
1904



OVER TWENTY THOUSAND JEWELERS

will receive one of these announcements this week.

OVER TEN MILLION CONSUMERS*

will receive copies of magazines containing our advertisement this month.

THIS ILLUSTRATION

is from our Catalogue No. 66 K, which gives full particulars regarding our goods.

LET'S WORK TOGETHER.

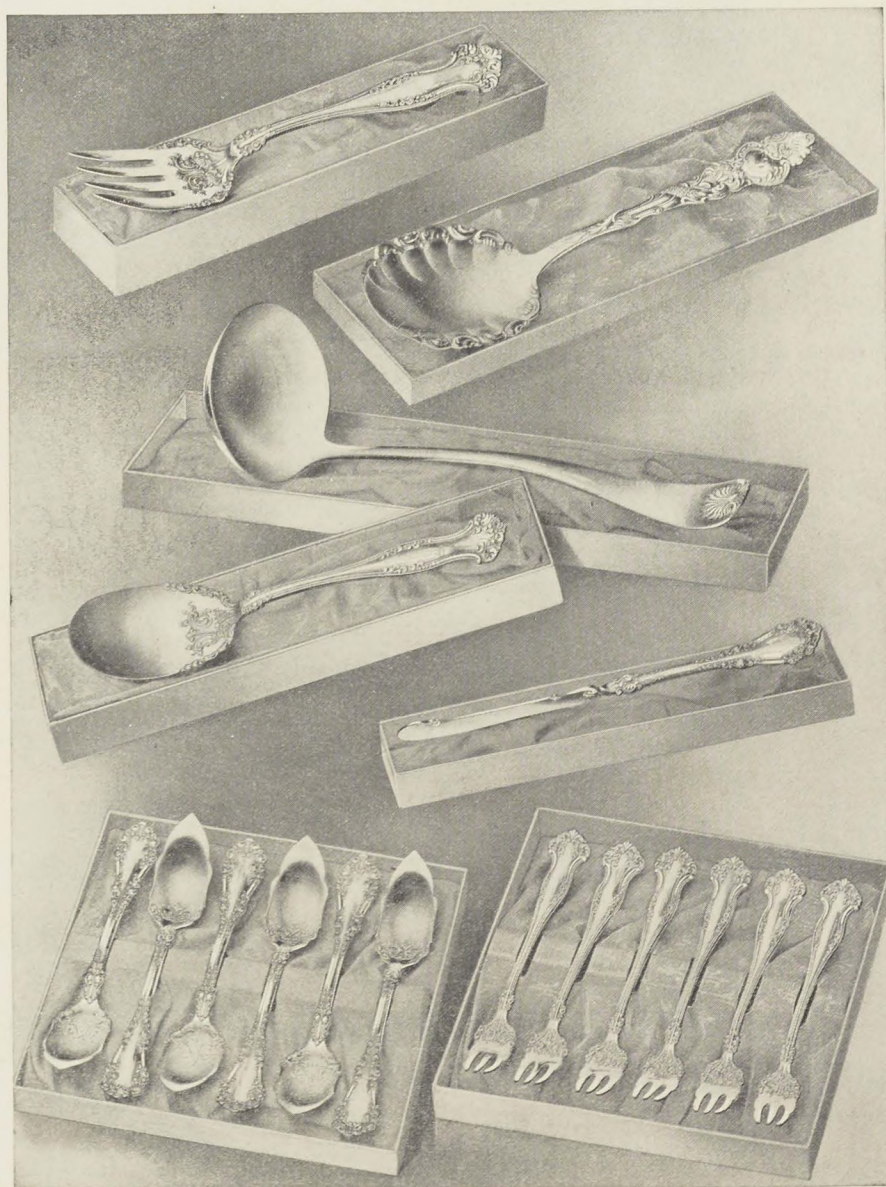
International Silver Co.,
Successor

Meriden Britannia Co.

MERIDEN, CONN.

*It is sometimes figured that each copy of a publication is read by at least five persons—this would mean that at least 50,000,000 readers will see publications containing our advertisement each month.

1847 ROGERS BROS



ASK YOUR JOBBER. SEE HIS SAMPLES. GET HIS PRICES.

A Palatial Jewelry Store

THE very acme of perfection in jewelry store designing and furnishing seems to have been attained in the palatial new establishment of the Bailey, Banks & Biddle Co., at 1218-22 Chestnut Street, Philadelphia, Pa., an interior view of which is shown on this page. This beautiful store is especially interesting from the fact that its architectural conformation, the handsome fixtures, the ideal arrangement of departments, the admirable lighting system, all are the work of the company itself and a striking manifestation of the wealth and versatility of talent in which the firm rejoices.

The store proper, as shown in our illustration is 230 by 76 feet, and is classic in proportion and form. Ornate pillars of imposing dimensions support a paneled roof which is prettily tinted and artistically decorated. A light well in the center admits the requisite sunlight and lends greatly to the brilliancy of the store. There is a wide center aisle, and several transverse aisles which divide the floor space into departments. The fixtures, which are of the firm's own designing and manufacture, are of carved mahogany and on a scale of lavish richness. They are admirably adapted for advantageous display, and the unique system of lighting conduces especially to this end. An ornate gallery circles the store and this is utilized for the display of marbles, bronzes, paintings and art goods generally.

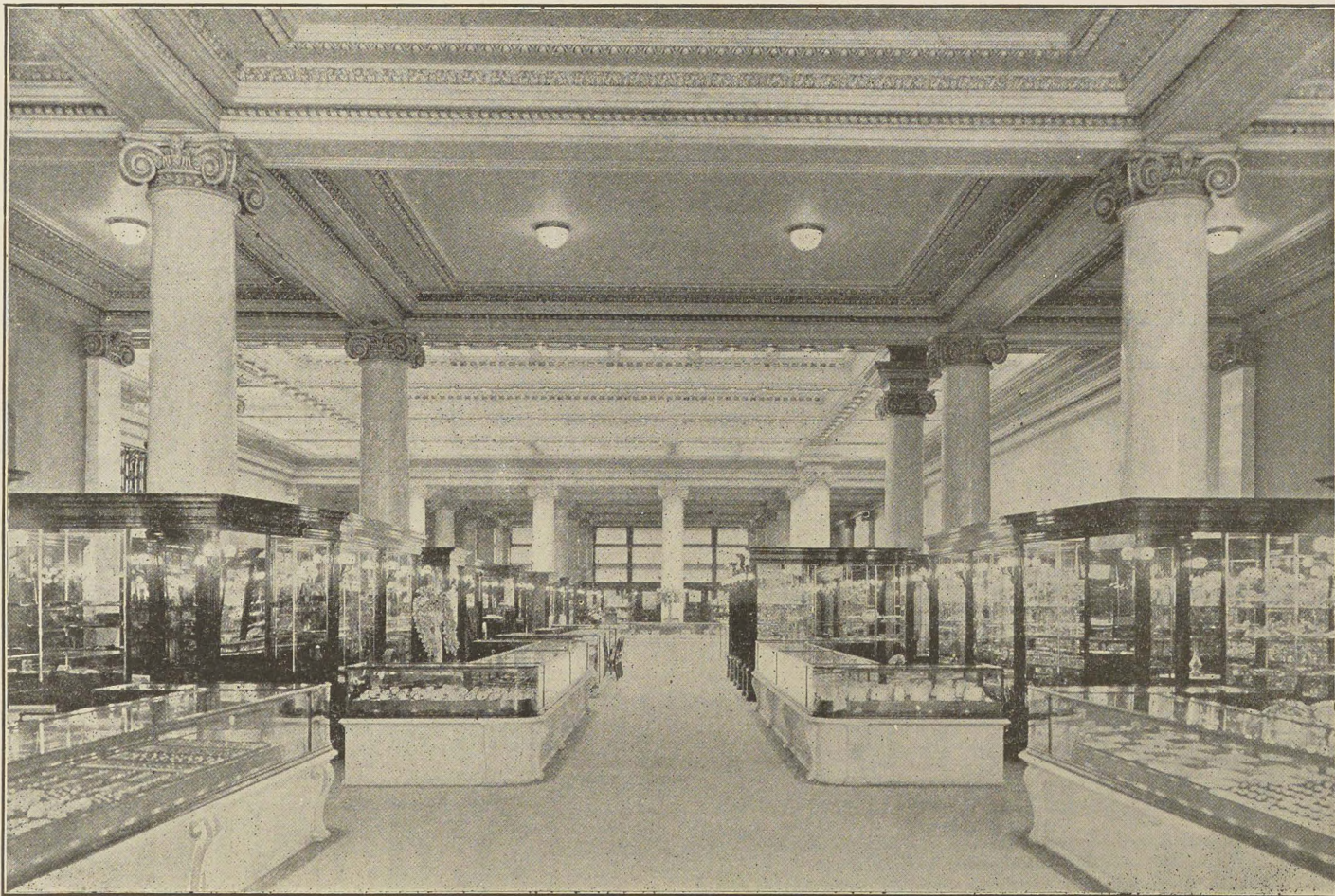
The store has many novel features. The diamond department includes an artificially-lighted mirror room finished in ebony for the study of effects, and a handsome dressing boudoir. There is every conceivable convenience for shoppers, one of these being a handsomely furnished lounging or rest-room of colonial design. Every precaution has also been taken for the security of goods and

property. The company's entire business, including factory, stationery and engraving shops, etc., is located in the building, which is ten stories high and of imposing architectural design.

Activity in Store Improvement

It is pleasant to note the activity in store improvement that has developed in recent years among the trade. This is due partly to the prosperity which the jewelers have enjoyed for several years, partly to the education on the subject afforded by trade journals and fixture manufacturers, and partly to a healthy spirit of rivalry among competing merchants. The more progressive jewelers realize that a chief factor in the sale of jewelry is a handsome store and suitable furnishing. A weather-beaten store front, with a decaying dummy clock; crude, ill-lighted show cases, a dusty window with faded trimmings, ill-kept, tarnished stock, a sour-visaged, listless proprietor—any or all of these indicate a lack of enterprise, a living in the past, a decay that repel trade. On the other hand "A thing of beauty is a joy for ever." A handsome store front with fascinating window trim, rich fixtures, a spick and span stock and alert, active, happy-looking salespeople are a never-failing magnet, drawing custom from all who see. Such a store is an irresistible advertisement and begets confidence in the man and his stock.

Handsome fixtures may now be procured at moderate cost, and on terms which most jewelers consider very favorable. The manufacturers will gladly advise patrons as to what best suits their store and resources, and the fixture catalogues are in themselves an education. The mercantile world moves swiftly in these days, and the old-time jeweler must get out of his rut, even if the effort jars to disintegration all his most revered ideas.

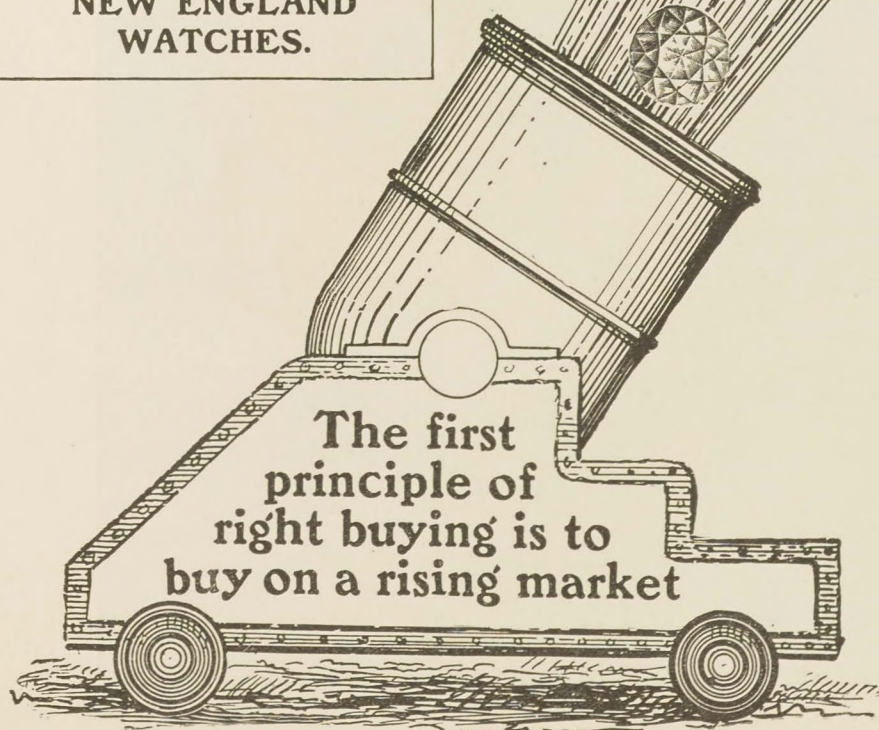


The Magnificent New Store of the Bailey, Banks & Biddle Co., Philadelphia, Pa.

Rapid Rise in Diamonds.

EVERY few months a cablegram announces another advance in the price of Diamonds, and we have it on reliable authority that still further advances are even now in contemplation. Notwithstanding the pronounced scarcity, our close relations with the Diamond markets of Europe enabled us to secure a large supply of loose Diamonds previous to the recent advance. These are now at the service of our patrons, and at prices that make them most desirable stock to sell—or to keep, for even in the show case they will advance in value.

Largest Distributors of
**WALTHAM,
ELGIN and
NEW ENGLAND
WATCHES.**



THERE are qualities in Diamonds as in other goods. As in all else WE handle, our Diamond stock is carefully selected from the best quality stones, and comprises only such goods as WE AND YOU can stake our reputation on. Buy now, for a month may mean another advance and we want you to have that advance and other advances that may follow.

N. H. WHITE & CO.
21 Maiden Lane, New York.



New York Letter

Merchants' Association After Ticket Scalpers

The Merchants' Association of New York, working in conjunction with the officials of the Trunk Line Association, has caused the arrest of ticket-scalper Harry Frank, of 663 Broadway, New York City, on a technical charge of forgery; the acts having been committed in connection with the present series of merchants' reduced rates to the metropolis. Frank was held in the Center Street Court in \$1000 bail pending the hearing of the case. District-Attorney Jerome, to whom was presented the evidence gathered in the crusade recently conducted against ticket scalpers by the representatives of the Merchants' Association and the operatives and detectives of the Trunk Line Association, has instructed Assistant-District-Attorney Johnston to fully prosecute the cases to be brought up for fraudulent manipulation of return-trip certificates. The retail merchants all over the country will be pleased to hear of the action taken by the Merchants' Association of New York, for they are innocently made parties to the illegitimate transactions of the scalpers.

Jewelers' Security Alliance

The regular monthly meeting of the executive committee of the Jewelers' Security Alliance was held on Friday, April 8th, the following members being present: President Sloan, Vice-Presidents Champenois and Wood, Treasurer Karsch, Secretary Noyes, Messrs. Abbott, Alford, Brown and Bowden of the committee. The following were admitted to membership:

| | |
|---|---|
| Bride & Tinckler, Newark, New Jersey. | Mills Jewelry and Piano Co., Streator, Ill. |
| Oscar J. Ludwig, Waterloo, Iowa. | A. J. Youngdahl, Chicago, Ill. |
| J. W. Smith, Slater, Mo. | O. A. Karnes, Overbrook, Kansas. |
| Jas. A. Sorenson Co., San Francisco, Cal. | B. W. Barrett, Newburyport, Massachusetts. |
| William S. Tarrant & Co., Seattle, Wash. | E. M. Gattle & Co., New York City. |
| H. A. Bump, Oklahoma City, Oklahoma. | J. C. Vickers, Hull, Iowa. |
| F. Jacobs & Bro., Norfolk, Va. | The John Brenner Jewelry Co., Youngstown, N. Y. |
| Kirchner & Renich, Minneapolis, Minn. | Stone & Herrick, Conneaut, Ohio. |
| E. T. Lord & Co., Quenemo, Kansas. | Rud. C. Hahn & Co., New York City. |
| Chas. H. Morris, Dallas, Ore. | E. Hertzberg Jewelry Co., San Antonio, Texas. |
| Carl H. Sjöberg, Brooklyn, New York. | Hollins Bros., Lake Charles, Louisiana. |
| The Bohm-Bristol Diamond Co., San Francisco, Cal. | G. A. Cornwell, Glouster, Ohio. |

Important Decision on Strung-Pearl Tariff

The adjudication of the board of classification of the United General Appraisers at New York, in the protested case of T. Jefferson Coolidge, Boston, Mass., makes a ruling of considerable importance to precious stone importers. The merchandise in question consisted of pearls pierced and strung on cotton cords. They were assessed at 60 per cent. ad valorem, under paragraph 434 of the tariff act of 1897. In protesting against this classification the importer claimed that they were dutiable at 10 per cent. ad valorem, and this claim was upheld by the board, as is shown by its decision, which in part is as follows:

The evidence taken in this case is to the effect that these pearls have not been matched nor

selected, nor has their value been increased by drilling and stringing, and were it not for the fact that they are strung on cotton cords in bunches, the board would have no difficulty in reaching the conclusion that they fell within the scope of the decision of the United States Circuit Court of Appeals of the Second Circuit, *in re Tiffany vs. the United States*. (112 Fed. Rep. 672.) In G. A. 876 T. D. 11883, and numerous other decisions, the board held that beads strung on cotton cords were not dutiable as beads loose, not threaded or strung, but in those cases the beads were strung within the trade meaning of the term; whereas, the evidence shows that the pearls in this case were not strung as understood by the jewelry trade. Paragraph 436 provides for pearls in their natural state, not strung or set. Pearls set would be jewelry, and it is reasonable to assume that Congress had this fact in view when it coupled the word "strung" with "pearls set." This conclusion is strengthened by reference to paragraph 436, which provides for articles actually known as jewelry, including pearls set or strung. The bunch of unselected pearls in the case now before us does not partake of the nature of jewelry, and on the authority of the decision in the Tiffany case, we hold they are by similitude dutiable at the same rate as pearls in their natural state. The protests are sustained and the decision of the collector reversed.

Precious Stone Importations

According to the statistical compilation of General George W. Mindil, jewelry examiner at the public stores, the importations of precious stones at this port during the month of March amounted in value to \$1,932,066, which is less by about \$939,579 than the value of similar importations during March, 1903, but more by \$38,700 than those for the same month of 1902. With the respective exceptions, March, 1901 and 1903, the figures for March, 1904, are the greatest on record. They are made up of cut stones valued at \$1,152,916, and uncut valued at \$779,150. The appended table shows the classified importations for the past five calendar years:

| Year. | Cut. | Uncut. | Total. |
|----------|----------------|--------------|----------------|
| 1904 . . | \$1,152,916.01 | \$779,150.08 | \$1,932,066.09 |
| 1903 . . | 2,022,804.43 | 848,840.97 | 2,871,645.40 |
| 1902 . . | 1,386,647.04 | 507,724.43 | 1,894,371.47 |
| 1901 . . | 1,410,770.20 | 817,768.32 | 2,228,538.52 |
| 1900 . . | 720,408.40 | 60,601.80 | 781,010.20 |

H. C. Kionka & Bro., precious stone dealers, 51 Maiden Lane, have dissolved partnership and the business will be continued under the same name by H. C. Kionka.

Edward A. Stern recently retired from the retail jewelry firm of Gattle, Stern & Co., and the name of that concern has been changed to E. M. Gattle & Co. Mr. Stern will open a business of his own at 425 Fifth Avenue, and in pursuance of a long cherished idea will retail jewelry at that address after the manner of the dealers in Paris and other noted centers of fashion in Europe. His interest in the firm of Gattle, Stern & Co. was purchased by Mr. Gattle, and save for this transference of stock and the altered nomenclature the business remains practically as heretofore.

The optical business of Victor N. Nunes, 479 Fifth Avenue, was recently incorporated at Albany with a capital of \$3000. The name of the firm is now the Victor N. Nunes Co. V. N. Nunes, A. S. Nunes and Arthur Forrest are the incorporators.

The partnership hitherto existing between Maurice Weiner and Jacob Weiss, in the firm of Weiner & Weiss, manufacturing jewelers, 51 Maiden Lane, has been dissolved. This business will hereafter be conducted by Jacob Weiss under his own name.

Barnett Daniel, formerly in partnership with M. Bolotin, 43 Maiden Lane, under the firm-name of Bolotin & Daniel, recently launched a repairing, case work, cleaning, gilding and order business of his own at 32 Maiden Lane.

An enterprise was incorporated at Albany recently under the name of the Corona Diamond Syndicate, of New York, whose purpose is to mine for diamonds in South America. The capital of the concern is \$75,000. This company is said to be practically a successor to the Leggatt, Armenty & Fogel Diamond Syndicate, which began diamond mining operations in British Guiana four years ago. These activities will be continued by the new management on a more thorough and aggressive scale. The directors of the recently incorporated syndicate are: R. R. Fogel and Edward Pastman, of New York; and Theodore Bloecher, of Carlstadt, N. J.

Walter T. Thompson, who has been employed in various capacities for the past twenty years by the Elgin National Watch Co., has opened a business of his own at 9 Maiden Lane, this city. During the latter half of his long term with this company he occupied the position of manager of its New York City office. Upon resigning from its service he was succeeded by W. H. Kinna. Mr. Thompson will do a jobbing business in watches and watch cases. He is himself a practical watchmaker, and his long experience and mechanical proficiency should serve him well in his new enterprise. His office is situated on the ninth floor of the Jewelers' Building; a section of it has been set apart for the convenience of visiting jewelers who desire such accommodation. Mr. Thompson contemplates making periodical trips on the road.

Oscar Sherman, inventor and maker of the Sherman safety pin protector, has removed from 56 Newark Avenue, Jersey City, to 41-43 Maiden Lane, New York.

Morris Freedman, formerly with Jonas Koch, and Moe Adels, formerly with Rees & Yankauer, have formed a partnership under the firm-name of M. Freedman & Co. This concern will be located at 59 Maiden Lane, and will manufacture jewelry for the wholesale trade.

A business was incorporated at Albany last month with a capital of \$5000, under the name of the Gattle Jewelry Co. This concern will conduct a diamond brokerage business with offices on Maiden Lane. The directors are Morris Levinson, Hyman Gattle and Franklyn Nevins.

The jewelry store of Philip Stromberg, 333 Grand Street, was robbed of several hundred dollars' worth of jewelry and silverware recently by five burglars, who gained an entrance to the premises, pried open a safe and appropriated its contents. The robbery occurred in the early morning, and the perpetrators managed to escape with the booty and so far have not been discovered.

OUR "GRADE A" QUALITY.

CHART FOR THE GRADING OF DIAMONDS.

- A. Blue white and perfect.
- B. Blue white and imperfect.
- C. Extra white and perfect.
- D. Extra white and slightly im-
perfect.
- E. Extra white and imperfect.
- 1. White and perfect.
- 2. White and slightly imperfect.
- 3. White and imperfect.
- 4. Commercial white and perfect.
- 5. Commercial white and slightly
imperfect.
- 6. Commercial white and imper-
fect.
- 7. Good color and perfect.
- 8. Good color and slightly imper-
fect.
- 9. Good color and imperfect.

Copyrighted, March, 1902, by S. C. Scott.

The season for spring weddings will soon be here. This creates a demand for diamond jewelry, particularly single stones for engagement rings.

Most people prefer purity and fine color, rather than size in a diamond for this purpose.

When you have a purchaser for a fine diamond and wish a grade of stone that will make most any diamond show color by comparison,

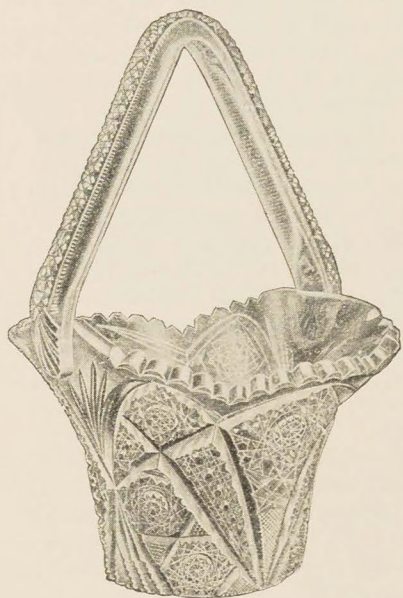
TRY OUR "GRADE A" QUALITY.

We can furnish you this grade of goods in any size, and at prices that will enable you to meet any competition.

Write us for prices, or let us send you some and compare prices and quality.

S. C. SCOTT MFG. CO.,

9 Maiden Lane, New York.



Hawkes Cut Glass.

GRAND PRIZE AWARDED AT PARIS EXPOSITION.

A yellow dia-
mond makes a
good show until
compared with a
white one.

Examine *Hawkes Cut Glass*
and look for this trade-mark
engraved on each piece,
without which none is genuine.



T. G. Hawkes & Co.,
Corning, N. Y.



Originality of Design
Characteristic
of

Egginton's Celebrated Cut Glass.

Highest grade in every
respect. Sold by best
dealers everywhere.

Manufactured by

The O. F. Egginton Co.

Inc. Oct. 11, 1899.

Look for trade-mark
engraved on every piece.



Corning, N. Y.

New York Letter

(Continued from page 723)

New Post Office

The conferees on the post office appropriation bill have reached an agreement on the proposition for a site for a post office at New York. The House provision authorized the lease of a branch post office at the New York Central terminal, at an annual rental not exceeding \$90,000, and for leasing a building at the Pennsylvania terminal at a cost not exceeding \$75,000 a year. The Pennsylvania Company declined to accept the lease proposition, and after a conference between the interests involved, the Senate amendment, which will become law, was offered as a compromise. It appropriates \$2,000,000 for the acquisition of a site for a post office building within the block bounded by Eighth Avenue, Thirty-first Street, Thirty-third Street and a private street or way to be opened for the use of the Government parallel with Eighth Avenue and 610 feet westwardly therefrom, such site to be subject to the right of the Pennsylvania, New York and Long Island Railroad Company to use for platform and trackage under a plane twenty feet below the curb line of the adjoining streets, which, however, is not to interfere with the erection of supports necessary in the construction of the post office building. The bill carries no appropriation for the building, that being left to the future.

24 K. Club's Big Membership Influx

A special meeting of the Twenty-four Karat Club was held on Thursday afternoon, April 14th, in the office of The Keystone Watch Case Co., 23 Maiden Lane. The chief feature of this meeting was the admission of thirty-two new members, this being a result of the decision recently come to by the club to extend the membership limit from 24 to 100. At this rate of increase, the century mark will soon be reached. Subjoined are the names of the new members: Charles R. Jung, Ludwig Nissen, David Kaiser, Alfred Krower, H. R. Benedict, E. J. Wittnauer, A. W. Woodhull, H. N. Eliassof, J. W. Riglander, W. H. Kinna, Chas. L. Power, Robt. B. Allan, Wm. T. Gough, M. L. Bowden, Jr., A. Schwob, A. J. Van Houten, I. N. Townsend, Robt. B. Steele, A. L. Brown, I. W. Cokefair, David C. Townsend, Sam'l H. Levy, Wm. A. Blythe, Charles W. Harman, Sam'l Kramer, M. J. Levy, E. C. Jamisen, W. S. Kallman, Wm. S. Ginnell, Wm. A. Bryant, Robt. H. Klitz and Henry Untermeyer. The by-laws were amended in several particulars, notably in the extension of the privilege of membership to persons in the watch, jewelry or kindred trades; with the proviso that the applicant must be connected with a New York house.

A New Protective Association

The Universal Protective Association was incorporated at Albany recently with a nominal capital of \$500. W. H. Theobald, formerly United States special treasury agent, is president and treasurer, and James B. Carples, secretary of this association. The functions it has been designed to discharge are "to make all the investigations necessary to procure evidence of undervaluation, smuggling or other frauds against the Government, as well as to substitution, imitation or infringement of patents, trade-marks, designs, labels, copyrights, etc., which may affect the welfare of its subscribers." It will proceed legitimately to procure evidence against offenders in this connection, lay its findings before the parties

aggrieved, and, if armed with the necessary authority, shall prosecute personally. The association has offices at 1 Madison Avenue.

Jewelers' Association and Board of Trade

At the regular meeting of the Jewelers' Association and Board of Trade last month, the following firms were elected members: Bay State Optical Co., Attleboro, Mass.; Despres, Bridges & Noel, Chicago; Eisler & Laubheim, New York; Louis Manheimer & Bros., Chicago, Ill.; South Bend Watch Co., South Bend, Ind.; W. T. Thompson, New York, and Western Clock Mfg. Co., New York branch.

Sigmund Kraus and Joseph S. Jantzen, who composed the firm of Kraus & Jantzen, leather goods and mountings' manufacturers, 170 Fifth Avenue, recently dissolved partnership. Mr. Jantzen has retired from the concern and Mr. Kraus, who has assumed all its liabilities and will collect all its debts, has been joined by a new partner in the person of Jacob H. Deitsch. The business will accordingly be continued at the same address under the name of Kraus & Deitsch.

The long-established firm of Albert Berger & Co. is about to remove from 47 to 45 Maiden Lane, after occupying the quarters at the first-named address for three and a half decades of years. This concern has been in existence for a period extending well over seventy years, having been founded in 1827 on William Street near Maiden Lane. A removal was effected in 1848 to the south side of Maiden Lane, almost directly opposite the quarters at No. 47. The firm again moved in 1854 to 15 Maiden Lane and remained there until 1869, eventually locating at 47 Maiden Lane, the premises which are now about to be relinquished. Thus the concern has continuously tenanted quarters on some portion of the lane for the past fifty-six years, which is believed to be a more extended tenure of premises on this street, so favored of the trade, than that of any other firm now located thereon.

According to a report in a local daily, John Roger, a customs inspector, who lives at 330 East Seventy-eighth Street, was arrested April 11th, charged with stealing a \$100 diamond ring from Louis Zussman, a jeweler, at 54 East Broadway. The jeweler alleges that he allowed Roger to take the ring for examination on March 17th, and that it was not returned. Roger declared that he lost the ring soon after he got it. Magistrate Cornell, in the Tombs police court, held him under \$1000 for trial. Roger is one of the heroes of the Spanish-American war. He was shot four times while in Cuba, and draws a pension of \$18 a month from the Government.

Hamilton & Hamilton, Jr., have moved their New York office from the Corbin Building, at John and Broadway, to 3 Maiden Lane, in the heart of the jewelry district. The new quarters are much better adapted to their needs, as the light is good and better adapted to show off the line than in the old quarters, besides being much more conveniently located to the trade in general.

Harris & Harrington have secured the services of F. Kroeber, the former clock merchant of this city, and will add a number of the specialties that Mr. Kroeber formerly dealt in to their line. Mr. Kroeber has a very extensive experience in the clock trade, and his many friends in the trade will be glad to learn of his having made such a satisfactory connection with this house, that will enable him to continue to handle the lines that he has dealt in for so long.

James D. Bergen, the cut-glass manufacturer, had another attack of illness last month after a

short trip to Hot Springs, Ark., where he had gone to recuperate from a previous attack of grippe. It appears he returned to his duties before he had recovered his strength, and suffered a relapse that threatened to develop into typhoid fever. Careful nursing, however, prevented the disease from making headway, but warned the patient that greater care must be exercised in again resuming the cares of business. Mr. Bergen is now slowly recovering, but it will be some time before he will be back to his former vigor.

The business of I. Ollendorff, importer and jobber in diamonds, watches, jewelry, clocks and silverware, 54 Maiden Lane, this city, and 335 Fifth Avenue, Pittsburg, Pa., was incorporated at Albany some weeks ago, under the name of the I. Ollendorff Co. The officers are: I. Ollendorff, president; H. Ollendorff, vice-president, and M. Ollendorff, secretary and treasurer. The Pittsburg branch will be in charge of W. S. Peckert, director of the company. H. Ollendorff, late of the Pittsburg office, is now at the New York City establishment and will look after the trade in the East and South.

At this writing the sum of \$470 has been subscribed by the local trade towards the Hospital Saturday and Sunday Association of New York. Subscriptions are being received by Leopold Stern and Emanuel Untermeyer and are reported to be coming in constantly. Among those who have already contributed are: Stern Bros. & Co., Oppenheimer Bros. & Veith, L. & M. Kahn & Co., Louis Srausburger's Son & Co., Albert Lorsch & Co., Eichberg & Co., Joseph Frankel's Sons, Jacobson Bros., C. F. Wood & Co., Hodenpyl & Son, Alfred H. Smith & Co., Joseph H. Fink & Co., I. Ollendorf Co., N. H. White & Co., Wm. I. Rosenfeld, Carter, Howe & Co., J. B. Bowden & Co., Ingomar Goldsmith & Co., Leopold Rosenberger, Freudenheim Bros. & Levy, A. Roseman, A. Goldsmith, Henry Froehlich & Co., Jonas Koch, Mount & Woodhull, Aikin, Lambert & Co., Cross & Beguelin and Smith & North.

Fishel, Nessler & Co., of this city, the proprietors and patentees of the "Breakless Bar Pin," have brought suit against J. J. White & Co., Providence, R. I., who, they claim, manufactured and sold imitations of their pin. The suit was instituted April 21st.

The basement of the building occupied by R. L. & M. Friedlander, 30 Maiden Lane, recently underwent alterations and improvements of an extensive character.

Exports of Watches and Jewelry

Official reports from Washington give interesting information as to the exports of watches, clocks, jewelry, silverware, etc., for the year 1903 as compared with 1901 and 1902. The figures are as follows:

| | 1901. | 1902. | 1903. |
|---|-------------|-------------|-------------|
| Clocks and parts of | \$1,296,222 | \$1,146,381 | \$1,091,724 |
| Watches and parts of | 1,044,529 | 998,109 | 1,041,805 |
| Table cutlery | 33,647 | 46,062 | 69,848 |
| Ivory, manufactures of | 18,495 | 33,664 | 68,816 |
| Jewelers' ashes and sweepings | 225,815 | 239,969 | 174,158 |
| Jewelry | 1,017,881 | 1,069,056 | 939,797 |
| All other manufactures of gold and silver | 211,791 | 269,291 | 353,224 |
| Plated ware | 517,208 | 595,626 | 662,708 |

In order of magnitude for 1903, the exports of clocks and watches and parts of the same ranked 42d. The combined exports of both lines in 1898 were valued at \$1,727,469; in 1899, at \$1,863,431; in 1900, at \$1,977,694; in 1901, at \$2,340,751; in 1902, at \$2,144,490, and in 1903, at \$2,133,529, or 15 per cent. of the whole amount of exports for the year of domestic merchandise; of which, by the way, the total value was \$1,392,231,302, as against \$1,355,481,861, and in 1901 of \$1,460,462,806.



"A REVOLUTION IN COMPUTING TIME."

From the Sun Dial, Hour Glass and Present Dial Clock,
to the Famous

"Ever-Ready" Plato Clock

AN IDEAL TIME-TELLER WITHOUT
HANDS OR DIAL.

The Plato Clock tells the time at a glance, and, as the hour and minutes are shown in figures, no mistake is possible. It is wound, set and adjusted like any other clock, keeps perfect time and will last indefinitely.

Only the highest class of material and workmanship is employed in their manufacture, and the works are protected by a neat glass globe. The frame is highly artistic and ornamental and in fine gold finish.

A few of these clocks with the motto "Watch the Time Fly" make

AN IRRESISTIBLE WINDOW ATTRACTION



for the jeweler and sell as quickly as shown. The upper plate in the illustrations shows the hour and the lower plate the minutes. The change of the figure every minute on the lower plate is very catchy and impressively suggestive of the flight of time.

The plates can be had in any color—white, red, blue or dark green. In ordering, specify the colors desired.

Retail Price, \$6.00. Write for Discount.

American Electrical Novelty and Mfg. Co., 304-314 Hudson Street, New York City.
Chicago Address, 184 Lake Street.

The Highest Achievement in Watch Construction

is represented in the

VACHERON & CONSTANTIN

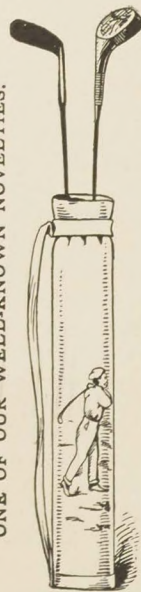
GENEVA, SWITZERLAND



THE LEADER in { Quality Adjustment Durability Style

It Fits All Sizes of American Cases
New Grades—New Sizes—New Improvements
Special Grades for Railroad Men

EDMOND E. ROBERT, SOLE AGENT
3 Maiden Lane, New York



LEADERS FOR THE JEWELRY TRADE

We fill the long-felt want of the jewelry trade for popular-priced leaders in STERLING SILVER JEWELRY.

We show the largest line of Sterling Silver Hat Pins, Belt Pins, Brooches, Waist Sets, Links, Scarf Pins, College Pins, etc., on the market.

WRITE FOR SAMPLES AND PRICES.

Rothschild Bros. Co.

Largest Manufacturers of Popular Priced Sterling Silver Jewelry and Novelties.
Attleboro, Mass., U.S.A.

A Beautiful Silver Service

A pretty custom, which usage has made almost imperative, is the presentation of silver services to our warships by the States and cities after which they are named. The State of South Dakota has followed the custom in presenting a handsome service to the new armored cruiser of that name. This service was designed and made by the Gorham Mfg. Co., Providence, R. I., and is remarkable for art and aptness of the design and the beauty of the execution. It consists of thirty-two pieces, including a punch bowl and ladle with plateau and twenty-four cups, two candelabra, one soup tureen, sugar bowl and cream pitcher. The design is symbolical of the sea and South Dakota and is highly artistic in conception.

The punch bowl is 14 inches high, 18 inches wide and has a capacity of 36 pints. The body is surmounted with a grape border well rolled over, and on each side is an etched farming scene. The ornamental border includes dolphins, corn, wheat and other articles. At the top is the seal of South Dakota, and on the other side the seal of the United States Navy Department. Two massive handles of buffalo heads, modeled from a picture in the office of the governor of the State, serve to still further complete the identification with South Dakota. The feet form a strong feature, being large and strongly chased with dolphins as a firm support to the body. Between the feet are mounted shells, seaweed and other articles. The base is finished with a rope. At the top of the handle of the ladle is the portrait of an Indian chief.

The plateau or waiter is 25 inches long. In the center is an etching of the cruiser, with an inscription which shows the set to have been given by the State of South Dakota. It is surmounted by a massive border, on two sides of which are seals of the State and of the Navy, ornamented by corn and wheat, oak and laurel. The two massive handles are formed with entwined dolphins, shells and other emblems of the sea. The mining scene on the punch bowl is from a photograph of the great Homestead mine in the Black Hills, and the artesian well scene is from a picture of such a well in the eastern part of the State.

The soup tureen is in keeping with the other pieces, the body having an ornamental shield, with

scenes of a buffalo and stag etched on it. The handles are surmounted with eagles and a shield. The cover is shelled, and the handle is formed by two dolphins, entwined. The foot is made to match the other pieces with dolphins and sea objects. The sugar and cream jug have etched subjects of sporting and fishing. The two candelabra are each 10 light, standing 24 inches high, and are very finely proportioned. The arrangement of the branches is very pleasing. Where they join the body they are surmounted by three eagles, and on the standard or upright are three steers, identifying the State with cattle raising. Between each is a scene of oil wells. The base is in keeping with the other pieces. The 24 cups have the State seal, corn and other objects, and the handles are formed with dolphins. The foot of each cup has shell decoration.

Making Tea by Clock Work.

A device for making a cup of tea by clock work has been brought out by an English firm. In that country tea is more of a breakfast beverage than in this, and this apparatus is designed for such persons as want the tea-making operation to be started at the earliest possible moment, and for the operation to proceed while the arrangement of the toilet is being made. The principal feature of this apparatus is the alarm clock, which not only gives the wakening signal, but also starts the tea brewing. The clock is connected with a spirit lamp, so that when the alarm goes off it releases a shutter which covers the spirit lamp, and as it flies back the shutter strikes a match—duly placed for the purpose—which lights the lamp, and thus heats the water in the kettle. As soon as this water boils a deft arrangement of wires causes the kettle to tilt and pour its contents into the pot set ready to receive it, the same action ringing a little gong to announce the pouring out of the water, and also automatically extinguishing the lamp. The alarm can be set for any time desired, the result following as a matter of course. Only those, says a London exchange, who have had to start at very early hours for a journey or for work can fully appreciate the luxury of this little machine, which will both call one at the proper time and have a hot cup of tea ready for one as one rises. It just makes all the difference. It come in handy for all sorts of purposes.

What Oriental Names May Mean.

In view of the difficulties created in the average Occidental mind by the average Oriental names, the following table of prefixes and suffixes will be of service to newspaper readers of the war news: Fu—To the name of a city, indicates capital of province, a city of the first class. Chou—Indicates city of the second class. Yi—A small post town, as Ychang-Yi.

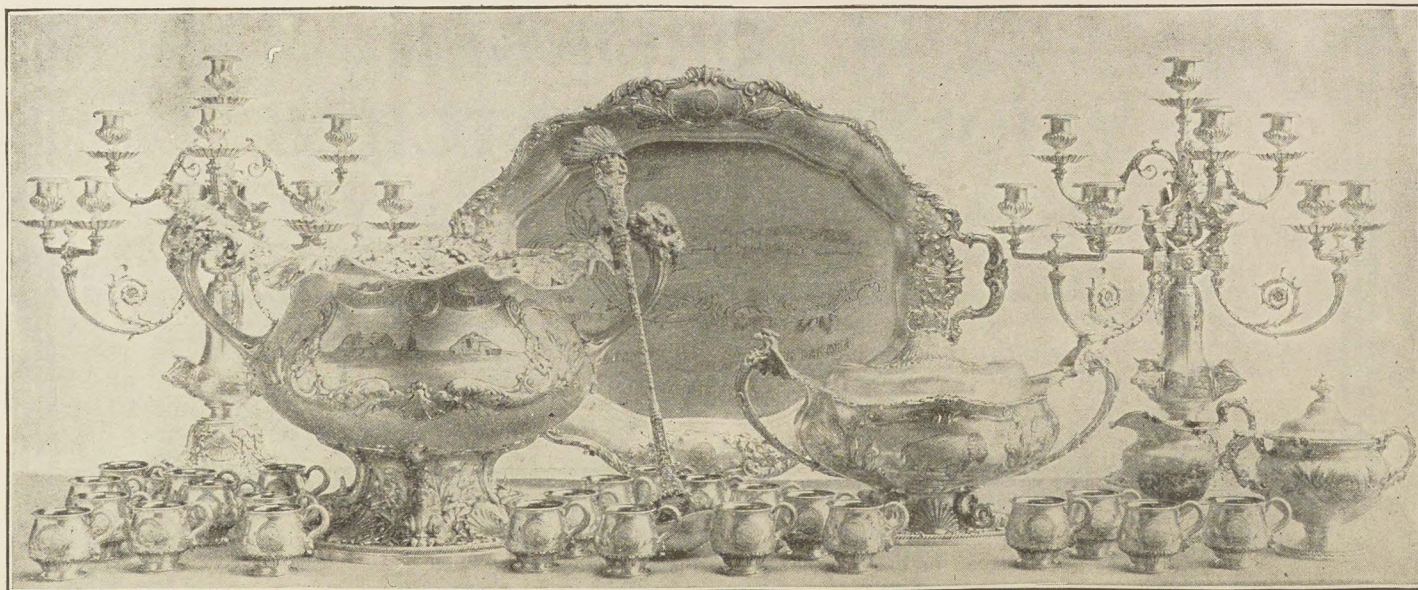
At the termination of geographical terms: Kiang, ho, yohuan, yohu—All mean stream, river. Hai—Sea, sometimes lake. Shan—Mountain. Kuan—Camp, strong, fortified place. Shan-hai-kuan—The fortified camp where the mountains and the sea meet, aptly illustrates these three terms. Ling—Pass over a mountain. Ycheng-chen-holo—Town, large village.

At the beginning of geographical names the following prefixes may generally be translated: Ya—Great, large. Siao—Small, little. Pei—North. Nan—South. Hei—Black. Huang—Yellow. Si—West. Tung—East. Strang—Upper. Hio—Lower.

Corean terms: In Corea, the termination Po, or Pho, indicates that the place is a port or harbor on navigable waters. For instance: Yongampho—The harbor near mouth of the Yalu river. Mashampho—The disputed naval base on the southern shore of the peninsula. Do—As termination indicates that the place is a province, and means, therefore, "the district of," or that it is the capital city of such a province. Han—River.

Throwing Down Gold.

Professor Fergus J. McInnes, a well-known authority, says that a useful method of obtaining a precipitate of pure gold from any solution containing mixtures of other metals is to make the solution strongly acid by either nitric or hydrochloric acid, then add from ten cc. to one hundred cc., according to quantity, of commercial formaline. The action is considerably hastened by a gentle heat, and pure gold in a crystalline condition is completely precipitated and separated from solutions containing mercury, zinc, lead, manganese, tin or arsenic. Platinum is also precipitated, but so slowly that the gold is separated from it by decantation. Iron is also precipitated in a crystalline form by formaline



Silver Service presented by the State of South Dakota to the new armored cruiser of that name.



WE will make a customer of you if you will kindly give us the opportunity to show you the fine system we employ in filling your mail orders for Watches quickly and correctly; how each particular requirement for jewelers in the line of Watches has our studious thought and unusual care. The chance to secure a part of your business is what we want. Will you give us that chance? Write our most convenient office.

**J. W. FORSINGER
WHOLESALE WATCHES,**

Columbus Memorial Building, **Chicago.** Room 711, No. 2 Maiden Lane, **New York.**



WESTERN BUREAU OF THE KEYSTONE
ROOM 601 COLUMBUS MEMORIAL BUILDING
CHICAGO, April 23, 1904.

The State of Trade

At last the backwardness of a backward spring has been broken. We have a decided change in the weather to-day and think we can see a silver lining in the clouds that are rolling by. What we have been wanting from the beginning of April is sunshine—lots of sunshine and warm weather to melt the snow and ice up north of us and to dry up the fields and the roads. This burst of warm weather has put a different phase on the situation, and everything now looks much more cheerful. This has undoubtedly been as trying a spring as the West and Northwest has passed through for years. The effects of a backward spring, following a severe winter and unusual injury from floods in several sections of the country, has been felt quite extensively this season by the wholesale jewelers as well as with all other kinds of merchandise. While there is a fairly good volume of business in the aggregate, the market is without the life and snap which are looked for when climatic conditions are more favorable and trade assumes its wonted course. We can see no reason now for changing in the least the opinion which we have expressed in these columns recently, that there is no cause for apprehension as to the business of 1904, or that it should be considered an off year if fair crops be realized. We believe that generally the indications are for a fairly active trade as the year advances, and that the lull is only temporary. Collections are not quite up to normal conditions.

Personal Mention

Maurice A. Mead, of M. A. Mead & Co., has just returned from a week spent at French Lick Springs. Mr. Mead tells us he enjoyed a delightful outing, and is feeling fine as a result.

The recent death of A. J. Chase, the veteran traveler who for twenty-seven years represented the house of Benj. Allen & Company in Wisconsin and Minnesota, is announced. Though Mr. Chase retired from the road seven years ago on account of old age, there are many jewelers in the above territory that will recollect him well and will be saddened to read of his passing away. His death occurred recently at his home in Lake Crystal, Minn., from complications arising from old age. Mr. Chase began life in the dry goods business in Boston, later he came West and settled in Chicago, continuing in the dry goods line for several years,

when he decided to try his fortune in jewelry and engaged with Benj. Allen & Co. as a traveling salesman. This was in 1872, right after the great Chicago fire. He remained with this firm until 1898, covering the Northwestern territory regularly for over a quarter of a century, seldom, if ever, missing a trip. Mr. Allen speaks of Mr. Chase as a faithful man and good salesman, though somewhat eccentric, especially as age grew upon him, but withal a popular man with the trade.

Leon Nordman, of Nordman Bros., the well-known jobbers, of San Francisco, spent a day or two in Chicago recently en route East on a business trip to the manufacturing centers. Mr. Nordman says business is fairly good on the coast this spring and that they are looking for a prosperous summer and fall trade, as crop conditions with them are better than usual at this season of the year. Mr. Nordman expects to return to Frisco in time to see his brother Joseph and wife off to Europe early in May.

Ed. Baumgarten, Western traveler for M. F. Barger & Co., met with a mishap at Warrensburg, Mo., recently, which came near being a fatal accident. He was trying to get on a moving train and a baggage truck full of trunks caught him before he accomplished it. The result of the collision was that Mr. Baumgarten was a pretty badly-bruised-up citizen for some days, but fortunately he was able to continue on his trip.

Jacob Boiskou, for several years past in charge of the watch repair department at Charles E. Graves & Co.'s, Clark and Madison Streets, died April 13, from pneumonia, after a short illness. He leaves a wife and two children. Mr. Boiskou bore an excellent reputation as a fine workman, and was well thought of by his employers.

L. A. Broaddus, formerly with J. S. Lewis & Co., Ogden, Utah, but for a year past assistant to Prof. Richard O. Kandler, of the Jewelers' School of Engraving, has gone to El Paso, Texas, where he has accepted a position with W. T. Hixon & Co.

W. G. Andersen, of the Juergens & Andersen Company, and family are enjoying a week's outing at Hot Springs, Va.

John A. Cox, of Benj. Allen & Company, was called to his old home in Canada last week to attend the funeral of his brother-in-law. Mr. Cox has been singularly bereaved of late, having lost a father-in-law, his mother-in-law, a sister-in-law and now a brother-in-law, all within the past six months. Mr. Cox will have the sincere sympathy of the trade in his bereavements.

James W. Appleton, of New York, son of the late Daniel F. Appleton, of Robbins & Appleton, general agents of the American Waltham Watch Company, spent several days in Chicago the early part of the month. Mr. Appleton was being shown among the trade by R. A. Kettle, manager of the Chicago office of this firm.

Benjamin Allen and Mrs. Allen returned the first of the week from a seven-weeks' trip in the South and East. They enjoyed a month's outing in Florida. The remainder of the time while absent was spent in New York and other Eastern cities.

G. V. Dickinson, general agent of the Elgin National Watch Company, returned to his desk Monday, after a delightful week's outing spent at French Lick Springs. Mr. Dickinson is looking fine, and says he never felt better in his life.

Joseph Linz, of Joseph Linz & Bro., the well-known jobbers, of Dallas, Texas, spent a day or two in town last week on a business trip. Mr. Linz, in speaking of trade conditions and crop prospects in his locality, said that the April rains had put the country in splendid condition. The prospects for a good season were never better. He thought it rather early to draw comparisons, but the indications were that this season's crop yield will equal that of 1900, which was the banner year. Texas was in a flourishing condition, he said, with the possible exception of the boll weevil district.

Theodore Kuehl, of Geo. Kuehl & Company, the cuckoo clock importers, has recently returned from his annual trip to the Black Forest of Germany, the seat of the cuckoo clock industry, where he spent seven weeks placing his firm's import orders for their fall trade. Mr. Kuehl tells us that he had an enjoyable trip, and that the new styles of cuckoos are handsomer and more attractive than ever before.

Miss Ethel B. Hyde, for four years past a faithful and popular employee in the jewelry department at Otto Young & Company's, was married on the evening of April 20th, at the home of her parents in this city, to Fred. Lund. The young people will make their future home in Chicago.


Harry Aller, well known in the trade here from his former connection with several of our wholesale houses, but at present jewelry buyer for the L. Bauman Company, wholesale, St. Louis, has been spending the past week in Chicago, accompanied by his wife and daughter. They have been visiting at the home of Mrs. Aller's parents, who reside in Englewood, this city.

A. Eisenberg, the well-known wholesale jeweler, of San Francisco, accompanied by his son Albert, spent a few days in Chicago recently, en route to the Eastern manufacturing centers. Father and son were the recipients of much kindly attention from the manufacturing branch of the trade while here, and expressed themselves as highly delighted with their stay in town.

Charles Lester, Chicago and Western manager for the New England Watch Company, and Mrs. Lester, recently returned from an enjoyable outing spent among the mountains of North Carolina at Asheville.

Henry Reinhard, Southwestern traveler of the Juergens & Andersen Company, was at headquarters last week, after an extended trip over his territory. He reports a quiet trade this spring, but says that prospects for a good summer and fall business seem bright enough. Mr. Reinhard left Monday for another trip over his territory, the last for the spring season, and expects to spend his summer vacation abroad this year.

(Continued on page 731)



DIAMONDS

A Nice Diamond
is the only kind to have.

Our constant endeavor is to have nice diamonds to sell at a reasonable price. The fact that we have long been buying our goods in the foreign markets and in large quantities places us in a position to give the very best diamond service to our customers. We solicit your orders for anything you may want in diamonds, loose or mounted.

Our 800-page Jewelry Catalogue is the best book for the Jeweler—it contains goods for all occasions and seasons—its pages are full of interest to anyone in the Jewelry business—be familiar with the best book.

BENJ. ALLEN & CO.

CHICAGO.

J. W. FARRAH & CO. CHICAGO

Chicago Letter

(Continued from page 729)

A. J. Hodenpyl, the head of the old established and widely known diamond importing house of Hodenpyl & Sons, New York, is spending a few days among the Chicago trade in the interests of his firm. Mr. Hodenpyl is often called the dean of the New York trade and is a distinguished looking, well-preserved gentleman of seventy-six years. He says time works wonders. When he last visited Chicago it was a small city of less than 60,000 souls. This was fifty years ago. As Mr. Hodenpyl walks our streets to-day he sees wonderful changes and a magnificent city of 2,000,000 souls teeming with life and energy. Though he seldom gets as far West as Chicago he is something of a traveler, as he has a record of making seventy-one trips across the Atlantic. Mr. Hodenpyl is a most interesting man to meet.

Steve King, of C. H. Knights & Co.'s traveling force, whose illness did not allow him to do any traveling during the months of January and February and March, has so far recovered that he started out on one of his regular trips early in April, and reports that he is feeling quite well again. He is giving a good account of himself in sales, and is feeling much encouraged over the future.

F. M. Drummond, administrator of the estate of the late James A. Todd, for many years vice-president and Chicago agent for the Towle Manufacturing Company, announces that the estate of Mr. Todd has been settled in the Probate Court of this county. The estate inventoried at \$48,000, and in addition Mr. Todd carried heavy life insurance.

President Jacob Bunn, of the Illinois Watch Company, Springfield, was a recent visitor among the trade in this city.

J. Van Wessem, for several years past in charge of the diamond department at A. C. Becken's, has recently accepted the position as manager of the jewelry department of the John M. Smyth Company, a mail-order house.

Harry W. Hahn, of H. F. Hahn & Company, wife and children, are enjoying a pleasant outing of several weeks at Atlantic City, N. J. Mr. Hahn will return to Chicago early in May, but the family will remain at the Eastern resort until late in June. Mr. Hahn will join them again June 1st.

Edward M. Cox, well and favorably known as the jewelry buyer at Benj. Allen & Co.'s, will have the sincere and heartfelt sympathy of the entire trade in the sad bereavement that has overtaken him in the loss of his wife who died very suddenly April 12th, at their residence, 5021 Calumet Avenue, this city, from hemorrhage of the stomach. The trade was well represented at the funeral, which occurred April 14th, interment at Oakwoods.

Herman F. Hahn, head of the house of H. F. Hahn & Company, returned the early part of the month from a two months' sojourn in Southern California, whither he went for rest and recreation. Mr. Hahn spent most of his time at Los Angeles, a city that has multiplied itself sixteen times in the past twenty-five years and assumes now quite metropolitan claims. "It is not only a center for a great agricultural section of marvelous fertility," said Mr. Hahn, "but it has factories, and there are mines and oil near, and all other things which go to make a great city. It is not directly on the ocean, but there is a great natural harbor twenty miles away at San Pedro, and the Government is building a three-million breakwater here. The harbor

is said to be the best south of San Francisco, and with our great trade opening with the Orient, and possibilities of the Panama Canal, a wonderful future for the city seems assured. In some respects it already leads Eastern cities. For instance, Los Angeles has a telephone for every eight persons, while Chicago and New York have to be contented with a telephone for every forty persons. It has the greatest street car system of any city on the earth—we mean the most modern and efficient. There are more automobiles and churches there than in any other city of its size in the world. But the thing that really would interest a man like me most was the great number of jewelry stores there. I was told that Los Angeles had more jewelry stores than could be found in the down-town retail district in Chicago. From what I observed I am inclined to believe that this statement is the truth. But the surroundings of the city are even more interesting. In plain view are the high peaks of the Sierra Madra Mountains, frequently snow-capped. In an hour one can reach the very foot of these mountains by the electric railway, and, indeed, in one instance, climb well up on the side of a mountain. In this hour's ride one will pass groves of oranges, lemons, olives, peaches, plums, grapes and cherries. The orange and olive trees are evergreen and an orchard with its contrasting bright yellow and dark green is as beautiful a sight as one would want to look upon. Then the flowers are everywhere and their wealth is one of the greatest charms of that country. For rest and health I know of no more charming spot the world over than Los Angeles and vicinity. As a winter resort it has no peer. It is simply grand, and I am always glad to get there."

Harry E. Farquharson, representing E. D. Gilmore & Co., Leach & Miller and C. A. Smith & Co., in Chicago and the Western territory, is spending a fortnight at Attleboro, visiting the factories of the firms he represents. He returns to the West early in May.

Ernst A. Zimmerman, cashier at the city desk in the Juergens & Andersen Co.'s office, has been promoted to the position of house salesman, succeeding William G. Morstrom, who has engaged in business for himself.

Percy W. Smith, manager of the Des Moines branch of the Geneva Optical Company, accompanied by Mrs. Smith, spent a few days in Chicago last week. Mr. Smith brings the news that the Des Moines branch is doing a steadily increasing business right along and that they have recently moved into new modern quarters, where they have much-improved facilities for the handling of their business.

H. G. Pfordresher, who represents the chain line of Geo. L. Brown & Co. in Chicago and the Western territory, left Chicago this week for a two-weeks' visit to the firm's factory in Attleboro, Mass.

Walter Green, of Carrau & Green, wholesale, San Francisco, spent a day or two in Chicago the early part of the month calling on his friends in the trade. Mr. Green was en route home from a trip to Europe.

George E. Smith, San Francisco agent of The Keystone Watch Case Company, was in Chicago for a day or two the early part of the month en route east on a visit to the main office of the Keystone Company, in Philadelphia. Mr. Smith remarked that as far as he could judge conditions were good all over the coast country, and the feeling prevailed that the season of 1904 would be a satisfactory one to the business interests of that section of our country.

J. S. Gratz, one of the oldest and best known travelers in the western territory, for a number of years past representing A. Hirsch & Company in the Northwest, died April 16th in Appleton, Wis., from heart failure after a short illness. Mr. Gratz was out on one of his regular trips when stricken down. His wife was telegraphed for and arrived at his bedside several days before her husband passed away. Mr. Gratz was in the wholesale business in Chicago at one time and was quite well known by the trade in all its branches.

William G. Morstrom, for fifteen years a house salesman with the Juergens & Andersen Company, has bought out the shop and manufacturing business of Julius Ziegler & Co., at 78 State Street and will continue this part of the business at this stand. Julius Ziegler & Co. will continue their wholesale business in diamonds and jewelry the same as heretofore but will seek new quarters which they will not be able to announce until our next issue.

David Chambers, head of the house of Chambers, Inskeep & Company until its amalgamation with F. A. Hardy & Co., and since that with the latter firm, has resigned his position with them and gone to Portland, Oregon, where he has just opened up a modern retail optical establishment. Mr. Chambers left for Portland early in the present month with his family and is already doing business in his new location. Mr. Chambers writes that he feels very much encouraged over his prospects and believes that Portland has a great future.

Dr. George W. McFatrach, secretary of the Northern Illinois College, and a well-known teacher of optics, has been invited and has accepted an invitation to lecture before the Northwestern Optical Association at its June meeting which will be held at St. Paul, on the 22d and 23d days of that month.

Morris H. Berg, of Hymen, Berg & Company, recently returned from a six-weeks' trip to Mexico, going as far as the city of Mexico and returning via New Orleans and Memphis. Mr. Berg says that our neighboring republic is growing and shows a good deal of prosperity.

Prof. Geo. A. Rogers, the widely-known lecturer and instructor in optics, has been appointed to fill the vacancy in the faculty of the Northern Illinois College of Ophthalmology and Otology made vacant by the death of Prof. David Ward Wood. By this arrangement Prof. Rogers will devote two hours of his time each day lecturing before the students of the Northern Illinois College in addition to his regular optical work.

Gossip Among the Trade

The Murine Eye Remedy Company will remove, May 1st, from the tenth floor of the Masonic Temple to the corner of Randolph Street and Michigan Avenue, where they will occupy much larger quarters. In their new premises they will have over three times the floor space they had in their old quarters, splendid light and all the modern facilities for the quick and careful handling of their rapidly increasing business. The Murine Company have enjoyed a steady growth in business from their beginning eight years ago until they had largely outgrown their Masonic Temple quarters and their seeking a new location was made an imperative necessity by the necessities of their business.

D. Lindquist recently sold his business at 6837 South Halsted Street, to H. L. Bere, by whom it will be continued at that location. Jeweler Lindquist contemplates locating in some smaller town, where he will devote more attention to the optical business than he has hitherto given it.

(Continued on page 733)

Late Springtide and Rush Orders

A May rush has resulted from the late Springtide. We welcome the occasion for the opportunity it gives us to show the completeness of our stocks and the excellence of our service. Whatever your wants in Watches, Jewelry and Diamonds, and however promptly you want them, we can satisfy you in stock, terms and service. Our Diamond offers are specially interesting in view of the rapidly advancing market.

STEIN & ELLBOGEN COMPANY,
DIAMOND CUTTERS AND WHOLESALE JEWELERS,
COLUMBUS MEMORIAL BUILDING, CHICAGO.

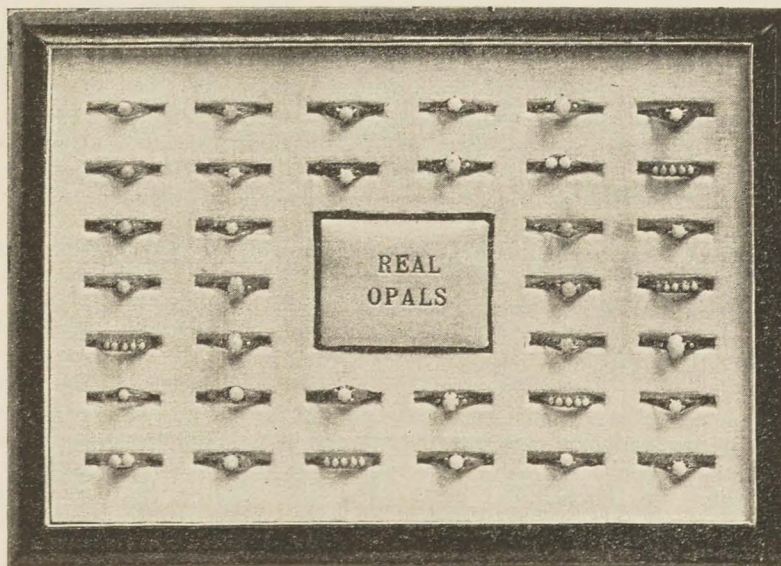
A TRADE INVIGORATOR.

350 Trays of Genuine Opal Rings as per illustration.

Seamless Gold
Shell Rings.

Warranted to wear
three years in constant use.

Price, **\$48.00**
per gross.



No. R 508.

Set with genuine
Opals.

Put up in handsome
tray.

\$12.00
per tray.

RHODE ISLAND RING CO., Inc.

101 Sabin Street,

Providence, R. I., U.S.A.

Chicago Letter

(Continued from page 731)

The Stein & Ellbogen Company have been making extensive improvements in their salesroom by putting in handsome mahogany display cases for the Pairpoint line of silver-plated ware and the Mount Washington line of cut glass, for which they are special agents. This improvement and rearrangement of their premises really gives them more room than heretofore, on account of better economy of their floor space. It also adds much to its appearance.

F. A. Hardy & Co. have acquired the space on the eighth floor of the Silversmiths' Building, which has hitherto been occupied by Wm. A. Rogers, Ltd. This will be so apportioned as to provide a stock room and surgical instrument department, besides affording an addition to the company's shop.

E. A. Dayton & Co., wholesale jewelers, tool and material importers, who have been in business at Omaha, Nebr., for many years, are about to remove from that city and become established on the eighth floor of the Thos. Church Building, 151 Wabash Avenue. May 1st is the date set for taking possession of the newly-acquired quarters. The firm will be accompanied to this city by its office employees and traveling representatives.

The Calvin Clauer Co., tool and material jobbers, have moved from the seventh floor of the Columbus Memorial Building to the eleventh floor of the Thomas Church Building, 151 Wabash Avenue. In its new home the company has more than quadruple the space formerly occupied. The fixtures, too, are a notable feature; the wall cases being of rich mahogany, handsomely carved. The company's force has been augmented and this, together with the large amount of extra space, will immensely facilitate the work of handling its growing business.

The Mauser Mfg. Co.'s local office has been removed from the fourth floor of the Champlain Building to the ninth floor of the Thomas Church Building, 151 Wabash Avenue, a change which affords the company much additional floor space. The newly acquired quarters have a frontage of 40 feet on Wabash Avenue and extend backwards to a depth of 27 feet. They have been handsomely fixtured with new wall cases and other equipment conducive to the comfort of the visiting trade under the supervision of Jack Stanley, the company's Western manager.

Alexander H. Revell & Co. are removing their factory from 431 Fifth Avenue, where they have been located for years past, to the block bounded by Dayton, Rees and Eastman Streets and Hawthorne Avenue, where they will occupy the entire block with their store-fixtured factory along with their upholstery factory. This firm has been doing a steadily expanding business for the past eight years, until their old quarters were inadequate, hence their seeking a new location.

Otto Young, head of the house of Otto Young & Company, will begin work on his new 19-story modern office building at the southwest corner of Madison Street and Wabash Avenue early in May, and expects to have it complete and ready for occupancy within a year's time. It will be a handsome business structure and will cost \$1,000,000.

News from the Trade

Geo. B. Ludy, senior member of the firm of Ludy & Taylor, Cedar Rapids, Iowa, has the sym-

pathy of his many friends in the trade on account of his long confinement to his home with a painful case of rheumatism. Mr. Ludy was first laid up in December and has been made a house plant until the early part of the present month, when he gathered up enough of strength to make a trip to Hot Springs, Ark. The latest reports from him are that he is on the road to recovery, which will be pleasant news to his friends in the trade.

Louis Seewald, the pioneer jeweler, of Tiffin, Ohio, is dead. He passed away at his home in that city April 7th, at the age of 72 years. He is survived by his widow, two daughters and a son. Mr. Seewald had been a jeweler in Tiffin for over forty years and was highly respected by the trade. The business will be continued by the son.

The A. Graves Company, of Memphis, Tenn., have recently made some changes in the personnel of the firm. N. Nelson, who has been manager of the firm for the past few years, has sold his interest to Mr. Cross, who has had charge of the books of the firm, and Dr. Meyer, the optician, and will retire. Mr. Nelson expects to take a rest from business cares for a time, and will go to Europe for a few months' trip of sight-seeing, recreation and rest. On his return he will likely engage in business again.

Jeweler E. B. Wade, of Galesburg, Ill., has just returned from a two-months' trip to England, Scotland and Ireland. Mr. Wade enjoyed his trip greatly, but says there is no place like America. He thought the jewelers of the countries he visited were fifty years behind the times in their business methods, their stores and lack of enthusiasm for their calling. He is more than ever satisfied with his own country and his own town, and says that one has only to take a trip like his to find this out.

Richard Miller, the pioneer and well-known jeweler, of McPherson, Kans., together with his wife and daughter, will sail for Europe the latter part of April to be absent three months. Their trip is one of rest, recreation and pleasure entirely. They will visit England, Ireland and Scotland, but expect to spend most of their time while away on the Continent.

Jeweler J. W. Talbot, of Nevada, Mo., has recently made some improvements in his store-room by building a gallery where he has located his optical department. Mr. Talbot has always pushed his optical business and is now enjoying a fine trade in this line.

A. C. Taylor, of A. C. Taylor & Son, Cedar Rapids, Iowa, contemplates a trip through the State of Kansas soon in which he will combine business with pleasure.

James B. Hayden, the widely known and popular jeweler, of Topeka, Kans., has been spending the last three months in Southern California, accompanied by his wife and daughter, where they seeking health and recreation. Mr. Hayden and his family will return to Topeka about May 1st, after a delightful stay in the land of flowers and sunshine.

Lucas Hermann, son of Jeweler Joseph Hermann, of Calumet, Mich., returned the early part of the present month from a six-weeks' stay in Arizona where he was seeking health and rest. Mr. Hermann gained ten pounds while away and says he was greatly improved in health by the trip.

C. O. Balliett, of Waterloo, Iowa, well known in the Chicago trade, has had an unfortunate time of it the past winter, having been confined to his home almost constantly by ill health. At last reports Mr. Balliett was feeling much encouraged over his improving condition.

This office is indebted to Jeweler L. W. Suter, of Nome, Alaska, for a copy of the *Nome News*, a special number containing sixteen pages, devoted to a review of the mining industry of Northwestern Alaska. It is a most creditable newspaper, full of interesting reading matter pertaining to the wonderful mineral resources of that far-away section of Uncle Sam's domains.

H. A. Rotzler, formerly with Jewelers Ed. Bengston and M. V. B. Elson, of Freeport, Ill., is just opening up a new store in that town. Mr. Rotzler bought his opening bill in this market and proposes to open up a neat store with a well-selected, fresh, new stock.

Out-of-Town Visitors

F. E. Goodale, son of Jeweler George L. Goodale, Lenox, Iowa, was in Chicago last week, en route to Morrocco, Ind., where he will take a position in H. E. Gragg's store. Mr. Goodale was a pleasant caller at KEYSTONE headquarters while in town.

J. M. Kaden, of Grand Haven, Mich., was met in one of our jobbing houses recently, where he was making some purchases for the spring trade. Mr. Kaden brought the news that he had just recently moved into handsome new quarters.

O. C. Hansen, Baldwin, Wis., was in this market the early part of the week, making selections of spring goods for the home store.

J. C. Cleis, of South Bend, Ind., was calling on our wholesalers and manufacturers yesterday, making purchases for his spring trade.

J. R. Reeves, of Mount Pulaski, Ill., was a visiting buyer in this market this week, on the lookout for spring novelties.

The firm of Trankley & Koerber, of Fort Wayne, Ind., were represented in this market by Mr. Trankley, the senior member of the firm, who was here on a buying trip.

C. V. Conyers, of Oneida, Ill., was among the visiting jewelers in this market last week, selecting a line of spring novelties for the home store.

H. E. Volkman, of Kankakee, Ill., dropped in on his friends in the wholesale business in this market last week, on a buying excursion.

Jeweler Charles H. Reynolds, of Alpena, Mich., was in Chicago recently, en route to the Pacific coast, where he expects to spend some weeks in travel and sight-seeing. Mr. Reynolds expects to spend a greater part of his time in Southern California.

W. F. Laraway, of Glenwood, Iowa, spent a few days in town the early part of the month, combining business with pleasure.

John Steck, of H. F. Steck & Co., Washington, Iowa, paid this market a visit the early part of the month. He was here on a buying trip, and reports spring business as fairly good in his section.

A Machine with Fingers

Among the exhibits intended for the St. Louis World's Fair is a device for feeding and removing sheets to and from a platen job-printing press, which is described as a startlingly uncanny machine. It consists of two arms, which possess a reaching and retracting movement resembling that of a human arm, and each of which terminates in five long, crooked fingers, the grasping power of which depends upon an automatic suction force in the fingertips. The arms work alternately; one delivers the blank sheets, and the other removes them as they are printed and deposits them on a platform.

We know that 1904 will be a banner year for

COMMUNITY SILVER

COMMUNITY SILVER possesses true art. Every line, every curve of its designs has a reason and meaning.

COMMUNITY SILVER designs possess a lasting beauty that has not been attained by any other plated ware.

The margin of profit to you is large.

Made in "Triple-Plus" only—heavier than triple plate.
Guaranteed for five-and-twenty years of family use.

ONEIDA COMMUNITY, Ltd.,
Niagara Falls, N. Y.
Oneida, N. Y.

San Francisco Letter

Geo. Marcus, of the wholesale jewelry firm of the California Jewelry Co., San Francisco, is on a buying trip to the diamond and precious stone markets of Europe, and will return home about June 15th.

Peter Johnson, of Angels' Camp and Sonoma, Cal., was among the visiting jewelers in town recently, calling upon his friends in the trade. Mr. Johnson brought some fine specimens of gold-bearing ore from one of the finest quartz mines in this section that he is interested in.

Radke & Co., the enterprising retailers, of Sutter Street, this city, have remodeled their store and refitted same with heavy beamed ceiling in Flemish oak, and altered the exterior to match. It presents a very attractive appearance and makes a welcome addition to Jewelers' Row.

We regret to announce the sudden demise of Leo Jacobs, who died on Friday, March 18th, leaving a bereaved wife and four children. The funeral took place from his late residence at 1902 Webster Street, this city, and was attended by his many friends in the trade. His son, Roland Jacobs, who represents Alphonse Judis Co., was called home from Arizona to attend the funeral. THE KEYSTONE joins the many friends of the family in extending sympathy.

E. Evatt, the retail jeweler, of Geary Street, has taken a lease on the store in the new Aronson Building, on Third and Mission Streets, and will move into this desirable store as soon as the building is completed. It looks as though several wholesale houses besides A. I. Hall & Son would also make this building their headquarters by the time the building is finished.

Jos. Rittingstein has opened a small retail jewelry establishment at 502 South Broadway, Los Angeles, after giving up his position as watchmaker for J. Abramson, of South Spring Street. We are pleased to say that he is doing a satisfactory trade in his new venture.

Alphonse Judis and family contemplate leaving San Francisco for an extended trip to the East, visiting their many friends among the jewelry trade. They will visit St. Louis on their way to New York, and will return home via the Canadian Pacific, visiting Tacoma, Seattle and Portland.

Warner Bros., the young retail jewelry firm, of Third Street, are looking forward to the completion of the building being erected on the site of their old store, at Third Street, near Mission, and are ready to install new, up-to-date fixtures as soon as the store floor is ready for occupancy.

A. Eisenberg and son, of A. Eisenberg & Co., San Francisco, Cal., jobbers of jewelry, are on an extended trip to the East, where they will call upon their many friends in the trade. Mr. Eisenberg, Jr., will visit all of the large Eastern manufacturing establishments in Philadelphia, Elgin, Providence and Attleboro, returning home by way of St. Louis to pay a visit to the fair.

L. Hunziker, the retail jeweler, of Pendleton, Ore., visited San Francisco recently with his wife and family and returned home, leaving his wife here, to enable her to regain her health. Mr. Hunziker is building a fine new residence in his town, and expects to have it completed before his family returns.

Mr. Goodenough, formerly of Goodenough & Sparrow, the Geary Street manufacturing jewelers, has sold out his interests to Mr. Sparrow, and has accepted a position with Carl Rappe, the retail jeweler, of Watsonville, California.

Huber Bros., one of the leading retail jewelers of Dillon, Montana, are now located in their new store and have fitted it with attractive new show cases and a fine line of jewelry. They are sure of doing an increased business, as the new location is in the center of the town.

I. Abramson is nicely housed in his new store at 133 South Spring Street, Los Angeles, Cal. His new location is nearer the center of the city than the old one, and his business is growing rapidly.

A. E. Morro, who has conducted a retail jewelry store at 342 South Spring Street, Los Angeles, since 1892, has decided to improve his store, so as to be in keeping with the new buildings being erected upon his block. His new windows of plate glass, with settings of Flemish oak, make a very attractive appearance. He is having a large new safe made, and will install a complete new set of show cases and wall fixtures. His store will compare favorably with any of its size in this hustling city.

Mrs. J. P. Trafton, of the J. P. Trafton Co., Inc., of Los Angeles, is visiting her friends and relatives in the East, and will remain there three or four months. The Misses Trafton accompany her. We are sure a hearty welcome awaited their coming.

M. J. Giant, who had the misfortune to be burned out last month, has reopened his store in Vallejo, Cal., and without losing very much business during the enforced idleness.

Geo. F. Blakeslee, who was formerly employed by the Frank Golden Jewelry Co., of Tonapah, Nevada, has gone into the retail jewelry business for himself, having opened a fine new store in Tonapah.

Abraham Green, father of Walter Green, of the wholesale jobbing house of Carrau & Green, while in Los Angeles last month, was seized with a severe attack of apoplexy, and as we go to press the outlook for a speedy recovery is not encouraging. Mr. Green is one of the largest diamond merchants upon the coast, and is closely connected with several large retail establishments in San Francisco. We hope for the best and wish him a speedy recovery.

L. Nordlinger, son of S. Nordlinger, the South Spring Street retail jeweler, of Los Angeles, spent a two-weeks' vacation visiting his relations in San Francisco last month, and returned home feeling better for the trip.

T. Lundy, the San Francisco retail jeweler, has had a new plate-glass front installed in his Market Street store, which now presents a very bright and attractive appearance, adding a very prosperous up-to-date look to the whole corner. This store is under the able management of J. Spiro and the show windows show the effects of his good taste.

A. J. Lyon's new store on Temple Street, Salt Lake City, is a new sample of what a retail store should be. It is a big improvement over his old location, and the new fixtures are creating very favorable comment.

Geo. Doerr has put in a fine new walnut show case in his retail store in Spokane, which further benefits this up-to-date jewelry establishment.

Jaeger Bros., the hustling retail jewelers, of Portland, Oregon, have had a new wall case made for their store and will install it as soon as they complete the extension.

W. C. Crawford, formerly with F. A. Van Norden, of The Dalles, Oregon, accepted a position as head watchmaker with Geo. E. Dodson, the retail jeweler, of Spokane, Washington.

Detroit, Mich., Letter

The unprecedented cold weather which we have experienced so far this spring has not improved trade conditions in this section. The prevailing opinion is that we shall emerge from winter directly into summer. The dealers in other lines who depend largely upon a "spring season," are very much chagrined at the unsatisfactory trade conditions which exist, due to a very late and backward spring. It is hoped, however, that this status of affairs cannot continue much longer, and that there will be a revival of business and an opportunity to make up for lost time.

The Board of Commerce, a strong commercial organization, composed of leading Detroit business men, has been very successful in pointing out to non-resident manufacturing concerns the advantages offered by Detroit as a manufacturing center. Several very large companies have recently purchased land here and shall move their entire plants, employees and all to Detroit. Thanks to the untiring efforts of this organization, the city of Detroit is beginning to enjoy the distinction of being one of the foremost manufacturing cities of the Union.

W. A. Rankin, formerly with Roehm & Sons, this city, has recently embarked in the manufacturing jewelry business at Toledo, Ohio.

Burt. Vorhees, for a long period with Rolshoven & Co., has gone to California to reside.

M. D. Walton, of Armada, Mich., is now comfortably located in his new store. Additional fixtures and fresh stock make his place a very attractive one.

John M. Cutter, of the Trenton Watch Company, Trenton, N. J., visited the trade recently in the interest of the company.

Mrs. H. D. Parker, of Dryden, Mich., visited here recently.

G. E. Hopps, of Kingston, Mich., has opened a new store at that place.

Walter Emmons, jeweler, of St. Johns, Mich., was called to Detroit a short while ago, owing to the death of a near relative.

Max Jennings, of St. Clair, Mich., vice-president of the American Retail Jewelers' Association, visited Detroit recently calling on the trade.

L. D. Stevens has opened a store at Lansing, Mich. He was formerly located at Hillsdale.

C. D. Gardner, of Manistee, Mich., has been suffering from a severe attack of rheumatism. We are glad to state that he is again able to attend to his business.

Mrs. O. C. Bath, wife of Jeweler Bath, of Ewart, Mich., is very low with an attack of Bright's disease. We regret to learn that at this writing her recovery is very doubtful.

E. O. Wells, formerly with Wright, Kay & Co., has located at Chicago and is now connected with Marshall, Field & Co., of that city.

It is with sincere regret that we chronicle the death of Mrs. S. D. Pond, wife of Jeweler Pond, of Allegan, Mich. Her malady was pneumonia, complicated by weakness of the heart and derangement of the stomach.

Among the recent visitors to this market we noticed: C. B. Bargman, Toledo, Ohio; Chas. King, Adrian, Mich.; F. N. Pauli, Pontiac, Mich.; W. W. Bridges, Marine City; A. Wagner, of Wagner Bros., Monroe, Mich.; Leo Kerbs, Wayne, Mich.; E. H. Cressy, Saline, Mich.; W. R. Gates, Jr., Morenci, Mich.; Mrs. F. M. Bowditch, Stockbridge, Mich.; William Gribben, Carsonville, Mich.; David Corey, Ubly, Mich.

Building an Empire with Water

HE who travels over the sun-blistered plains of the great Southwest in the La Esmeralda or the Flodora or even in the more comfortable but nameless tourist sleeper, sees little in the uninviting landscape to attract the husbandmen. Mere words are weak vehicles, indeed, with which to express his disgust for a country that produces nothing but mesquite, and sage brush, and cactus—a country where the jack-rabbit, lean, gaunt and undersized, appears too indolent and miserable to become frightened at the onrush of the screeching engine.

It has been said of a singed cat that it is better than it looks. How a singed cat can possess any degree of goodness, is not apparent, but the theory holds with the great desert country of New Mexico, Arizona and Southeast California—it is better than it looks, its possibilities are astonishing, its future of brightest promise.

Since the history of the world commenced, man has practiced the expedient of placing water artificially upon the soil in order to promote the growth of vegetation. He has always done this with a feeling that somehow he was intruding upon the prerogative of nature—doing a thing, undesirable in itself, but necessary for the day, and in order to meet his urgent need. So short is the sight of man that for centuries he could not comprehend that God placed the water in the shallow bank rivers and the rich, alluvial soil upon the plains, only requiring him, the man, to devise a way to bring the two into juxtaposition. But within a decade the West has come to understand and appreciate, in a small degree, the possibilities of irrigation. It is no longer a theory, an unfortunate expedient, practicable only in a limited way—it is an accomplished fact, so clearly demonstrated, so eminently practical, so desirable in every way, that the conservative Congress of the United States has been moved to sanction its cause and further its progress.

Water the Hope of the Plains

The rivers and streams of the Southwest flow in a sandy course between low, shelving banks. The present plan of securing the water is to build a low dam, which will cause it to rise and flow into a ditch or canal, the head of which is sunk several feet into the bank. The course of the canal is parallel with the stream, but creeps gradually away from it, and the intervening land is supplied with water by subditches and laterals.

Utilization of Rivers and Lakes

Both public and private enterprise are now fully awake to the fact that countless wealth flows each year from the western mountain systems into the two oceans, and modern science and skill, backed by capital, are devising ways and means wherewith this useless waste may be added to the country's resources. The Congress of the United States, in 1902, passed a law known as the Hansborough-Newlands Reclamation Act. Under its provisions all of the moneys received from the sale of public lands in all of the states and territories west of the Mississippi River are to be applied to the building of irrigation works in those states and territories. It is now evident that this law contains elements of beneficence to the individual citizen second only to the homestead law. Already extensive preparations for expending

this splendid legacy are under way. Skilled engineers, under authority of the government, are searching the desert country for available sites, and the next ten years will witness the greatest marvel of reclamation ever known to the world.

In central Arizona, in the very heart of the arid region, such a site has been selected. It is in a rock-bound gorge 200 feet wide, through which the upper branch of the Salt River flows. The dam, built of steel and masonry, will be 230 feet high, will cost over two million dollars and will provide storage for a million square feet of water. From this reservoir the

water will be sent down the channel of the river as needed and, radiating through innumerable canals and laterals, will irrigate the growing crops at points from fifty to two hundred miles below. Keepers and guards along the way will keep the superintendent at the reservoir informed by telephone as to the amount of water needed and the conditions prevailing.

Far up the Colorado, where the great river has sunk into the earth by erosion, to a depth of hundreds and even thousands of feet, the project of raising the water to the surface by

electric power, generated by the current itself, is being tested. Engineers state that the plan is entirely feasible, and if put into operation the great Mohave desert will blossom into life and provide homes for a great populace. All plans of irrigation, however, wherein it is necessary to lift the water even for a short distance are yet in the experimental stage, and their practicability is doubtful.

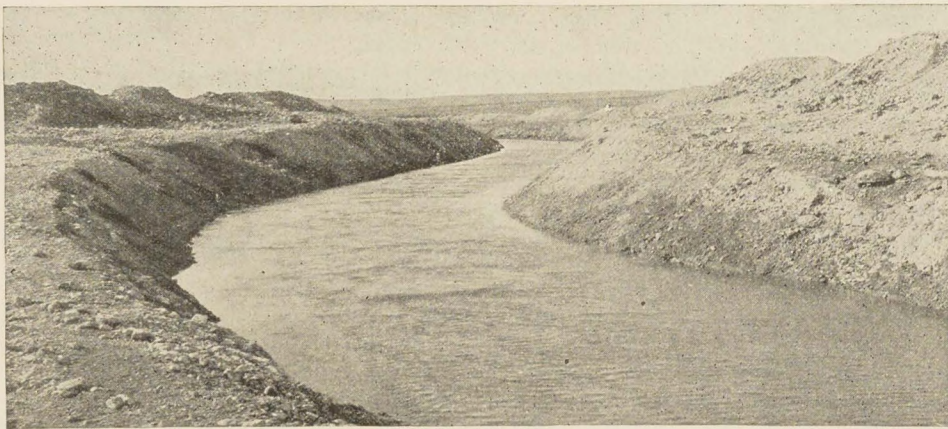
Prosperity and Irrigation

Private capital has taken courage from the action of the government, and is also undertaking great enterprises. A company with ample resources has tapped the Colorado River down close to the international line. The water is taken out upon the delta—a low, flat area—where, under natural conditions, neither animal nor vegetable life could exist. It is now the home of thousands of prosperous farmers. Towns are springing up, railways are building, animation and life have the place of stagnation, death. Does not this transformation rival the dreams of the alchemists?

Growing crops by irrigation is much more expensive than under natural conditions, but the yields obtained are far greater and the probability of failure much lessened. The cost of water varies greatly. Under some systems it is as low as \$1.50 per acre for the season; in other cases it reaches \$5.00 and \$6.00 per acre. The labor involved is also much greater, especially in preparing the soil for the seed, the many applications of water rendering the ground hard and lumpy.

It must not be supposed that all of the desert country is susceptible of reclamation. Only a comparatively small portion of it is so situated that the application of water is possible under any system now known. The terri-

tories of New Mexico and Arizona have, in round numbers, thirty million acres subject to irrigation. The average size of an irrigated farm is thirty acres, but granting each a quarter section, eighty acres, 375,000 farmsteads is the result. Add to this the area now under process of reclamation on the California side of the Colorado River, and the number of eighty-acre farms exceeds 400,000. The population of the territory embraced in this calculation is now about 400,000, and the area under irrigation two million acres.



Irrigation Canal Showing Barrenness of Soil When Canal was Cut



Same Canal in a Few Years After, Showing Spontaneous Growth

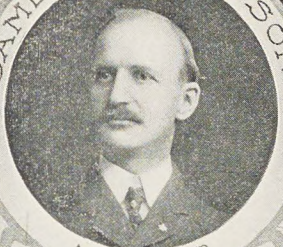




A CORDIAL WELCOME
is extended to all our
friends and patrons to visit
and make our establish-
ment their headquarters
during the great World's
Fair. We have provided
everything for your com-
fort and want you to en-
joy the hospitality of the
LARGEST EXCLUSIVE
DIAMOND HOUSE
IN THE WEST.

SIDNEY L. & MORRIS BAUMAN CO.
309 COMMERCIAL BLDG.
SAINT LOUIS. U.S.A.

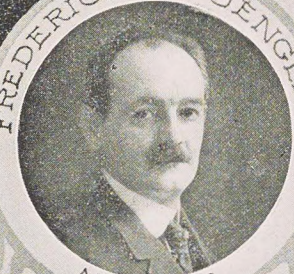
JAMES K. THOMPSON.



MANAGER

ACQUAINT YOURSELF WITH US And Our Enormous Wholesale MANUFACTURING ESTABLISHMENT.

FREDERICK W. JUENGLING.



MANAGER

WATCH DEPARTMENT

embraces all standard makes of American Movements, Solid Gold and Gold-Filled Watch Cases; full line of New England Watch Cos'. complete Watches. Swiss Complicated Watches, Timers, Strikers, Repeaters, Etc.

JEWELRY DEPARTMENT. Complete line of Solid Gold and Gold-Filled Jewelry. Diamond Jewelry a specialty. Sterling Silverware Department, includes everything in the line of Toilet, Table, Hollow and Flatware, Novelties, etc.

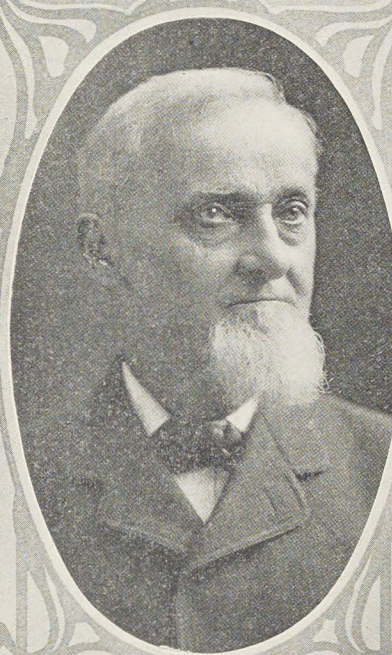
CLOCK DEPARTMENT

In this department we handle clocks of every description, from Nickel Alarm to the finest of Chime and Hall Clocks, but we represent only the best foreign and American makers.

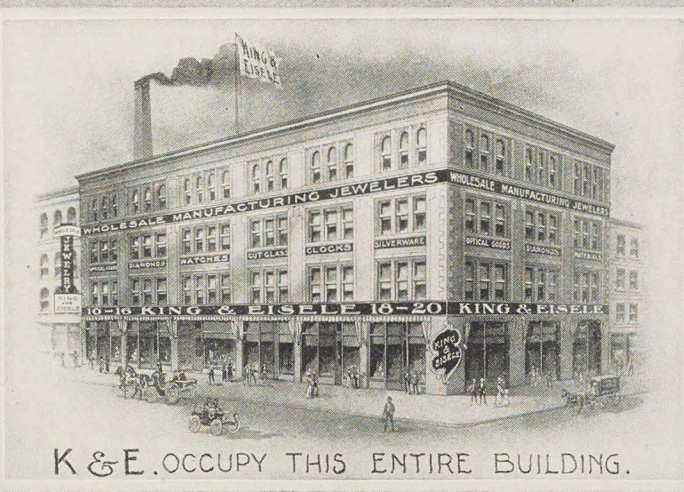
SILVERWARE DEPARTMENT is complete in every detail. Full line of Tea Sets, Prize Cups, Toiletware, etc. 1847 Roger Bros. and Smith's Flatware.



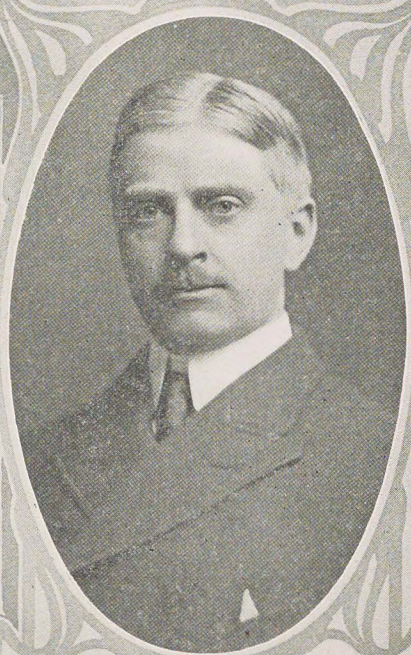
CHARLES F. SMITH.
MANAGER OF FINANCES.
Member National Association of Credit Men.



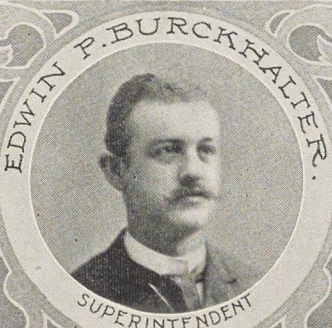
E.J. Eisele
SENIOR MEMBER OF
KING & EISELE.
FIRM FOUNDED IN 1870.



K & E. OCCUPY THIS ENTIRE BUILDING.



E.A. Eisele
JUNIOR MEMBER OF THE FIRM OF
KING & EISELE,
GENERAL MANAGER OF THE
ENTIRE ESTABLISHMENT.
DIAMOND CONNOISSEUR.



EDWIN P. BURCKHALTER.
SUPERINTENDENT
FACTORY

Our factory is one of the largest and best equipped jewelry plants in this part of the country. Special attention is given to Jewelry Jobbing for the trade. Manufacturing of Class and Society Pins, Badges, Medals, etc. It is the home of the K-E Ring line. Over 100 people are employed on this particular work the year round. The K-E Ring line is acknowledged as having no equal for finish and superior workmanship. Complete line sold direct to the retail jeweler.

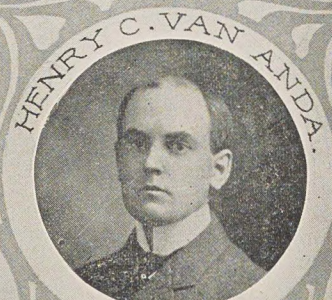


MANAGER

MATERIAL DEPARTMENT

From this department we can supply all kinds of material used in Watch, Clock and Jewelry repairing. Watchmaker's and Engraver's Tools, Workbenches, etc. Special catalogue furnished on application.

OPTICAL DEPARTMENT carries a complete line of Optical Goods, also Opera Glasses, Field Glasses, etc. Special attention given to prescription grinding. All work shipped the same day as received.



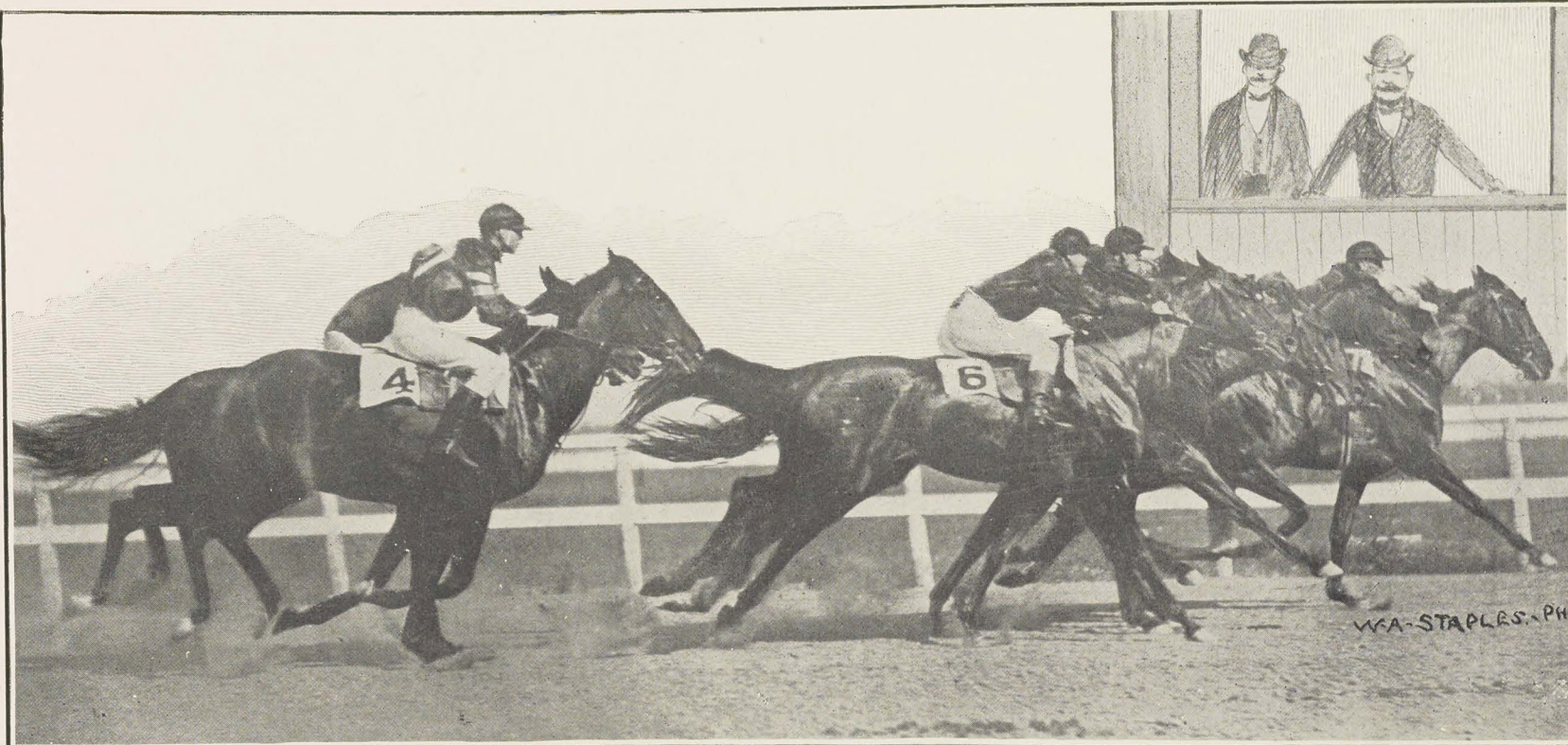
MANAGER

CUT GLASS DEPARTMENT

This department is an important feature, as our line represents the output of the Niagara Cut Glass Company, Buffalo, N. Y.; E. A. Eisele, President; E. J. Eisele, Vice-President; H. C. Van Anda, Secretary and Manager. In other words it is part of the vast industry of King & Eisele.

Catalogue of Cut Glass sent on application.

KING & EISELE
Importers of **DIAMONDS.**
MANUFACTURERS OF
RINGS, JEWELRY ETC.
BUFFALO, N.Y.



75c. per dwt.



No. 531. \$3.50.

75c. per dwt.



No. 440. \$2.65.

A GOOD FINISH

For every one of

The T.E.N. Rings

75c. per dwt.



No. 235. \$3.20.

75c. per dwt.



No. 549. \$3.00.

A Guarantee in every Ring.

This



TRADE MARK.

Stamped on the inside of shank.

75c. per dwt.



No. 436. \$4.50.

75c. per dwt.



No. 434. \$4.75.

75c. per dwt.



No. 395. \$2.65.

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No. 306. \$2.45.

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No. 372. \$1.88.

Only Genuine Doublets Used in Our Rings.

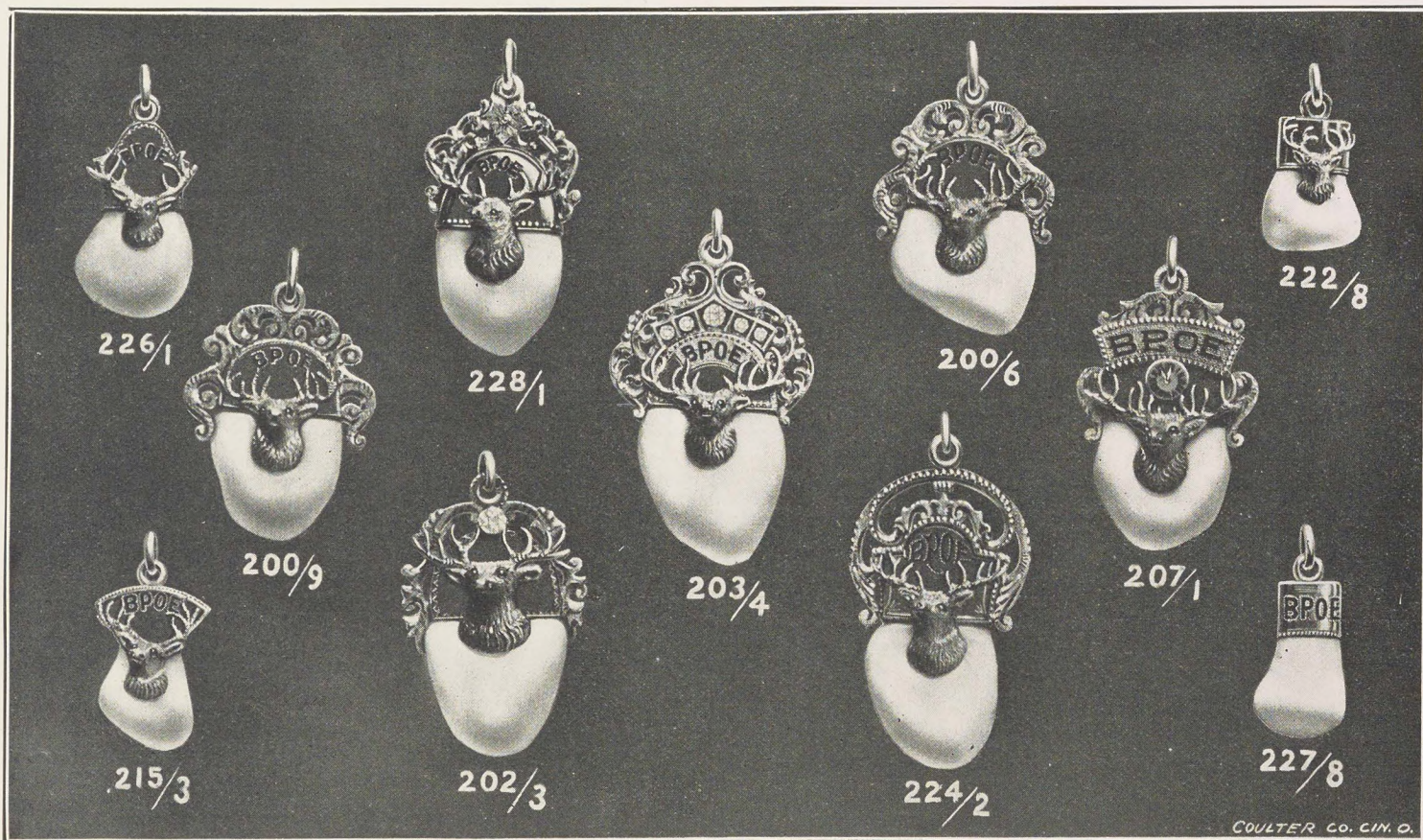
Our Rings are 10 K.; we make no others. Stamping them with our self-explaining trade-mark and advertising their quality and price guarantees to every jeweler and his customers that they get what they are paying for; it also relieves the jobbers, their agents and the retail jewelers from guaranteeing an article the making of which they did not witness.

Our Rings are sold by the Leading Jobbers.

DAMM & BLOCK,
515 Washington St., Buffalo, N. Y.

GENUINE ELKS' TEETH EMBLEMS

WITH HAND-CHASED MOUNTINGS.



The fact that **ONLY GENUINE ELK TEETH** are used in these emblems combined with the exquisite hand-chased workmanship gives the goods a symbolic individuality and a richness that appeal irresistibly to purchasers.

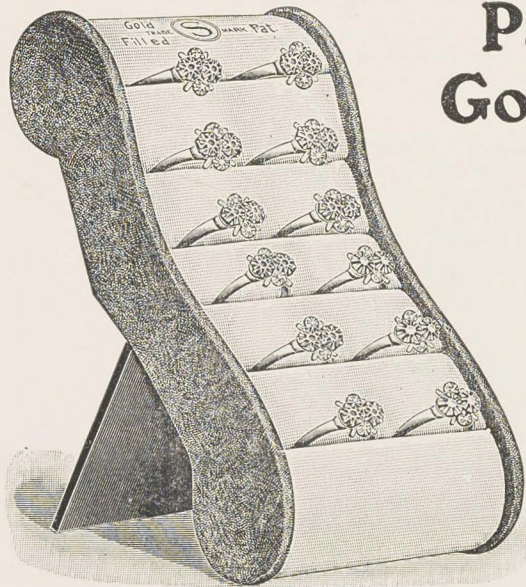
**WE MAKE A SPECIALTY OF ALL EMBLEM GOODS, INCLUDING
ELKS, MASONIC, EAGLES, ETC.**

Memorandum Packages gladly sent on request.

MILLER JEWELRY COMPANY,

MANUFACTURING JEWELERS
AND MAKERS OF
HIGH-GRADE EMBLEM JEWELRY.

LION BUILDING, CINCINNATI, OHIO.



Patented Gold Filled Rings.



NONE GENUINE
WITHOUT THIS



Manufactured by

The F. H. SADLER Co.,
ATTLEBORO, MASS.

Retailers' Ring Booklets Free.



To help you in building up your ring trade, we will send you free on request a quantity of advertising booklets for distribution in your locality. We will print your name on these booklets and no other name will appear on them. Mention Dept. K.



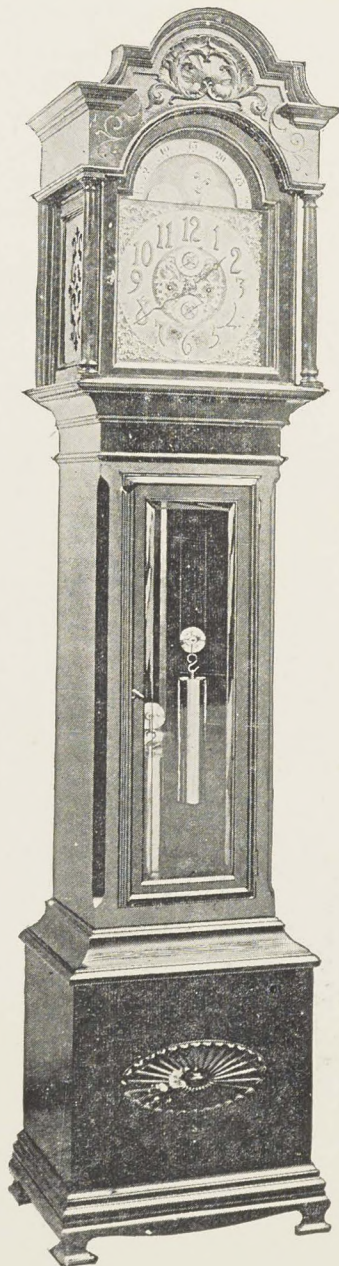
Hat Pins, Waist Sets, Fobs.

*Newest Designs in
Sterling Silver.*

**Scofield
&
De Wyngaert,**
48-50 Walnut Street,
Newark, N. J.



Sales Office:
7 Maiden Lane, New York.



This Solid Mahogany Hall Clock

$\frac{1}{4}$ Hour Strike,
Moving Moon,
Gilt and Silvered Dial,
Polished Brass Weights,
8-Day Heavy Brass
Movement,

\$90 Net.

A full line of Hall Clocks, solid Mahogany Cases. New and Artistic Designs. Fitted up with Westminster or Whittington chimes, five or nine gongs, or five or nine tubes.

Finest Imported Movements, solid brass plates, Graham dead-beat escapement and maintaining power.

Quarter Hour Clocks, Mantel and Willard Clocks in Mahogany Cases.

A Comparison of Our Prices is Invited.
Expert Repairing Done for the Trade.

W. H. HAYS & CO.

IMPORTERS OF CLOCKS,

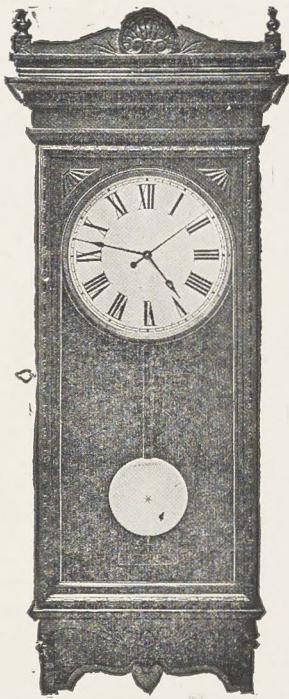
12 Cortlandt St.

Catalogue
upon application.

New York, N. Y.

No. 10.

49 inches High,
12-inch Dial.



Closing-out Price,
\$15, net.

*"Lest you forget,
We say it yet":*

The best wall timepiece ever made, at a moderate price—the simplest in construction, requiring least repairs—by far the most convenient, as it requires no winding or any attention for at least eight months at a stretch—the most accurate—is

The "Standard" Electric Clock

But they are no longer made, and can not be had after our present stock is closed out. You would do well to get some of them *while you can*.

Here are two popular patterns—there are two others. Write us for particulars. We furnish them with or without Seconds hand, or with Sweep Seconds hand, as desired.

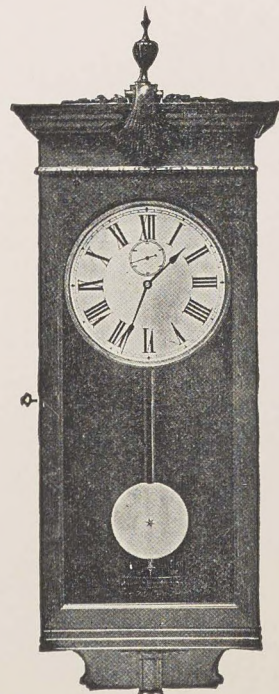
We sell these *direct* to the Retail Jeweler. Address

*New York
Standard Watch Co.*

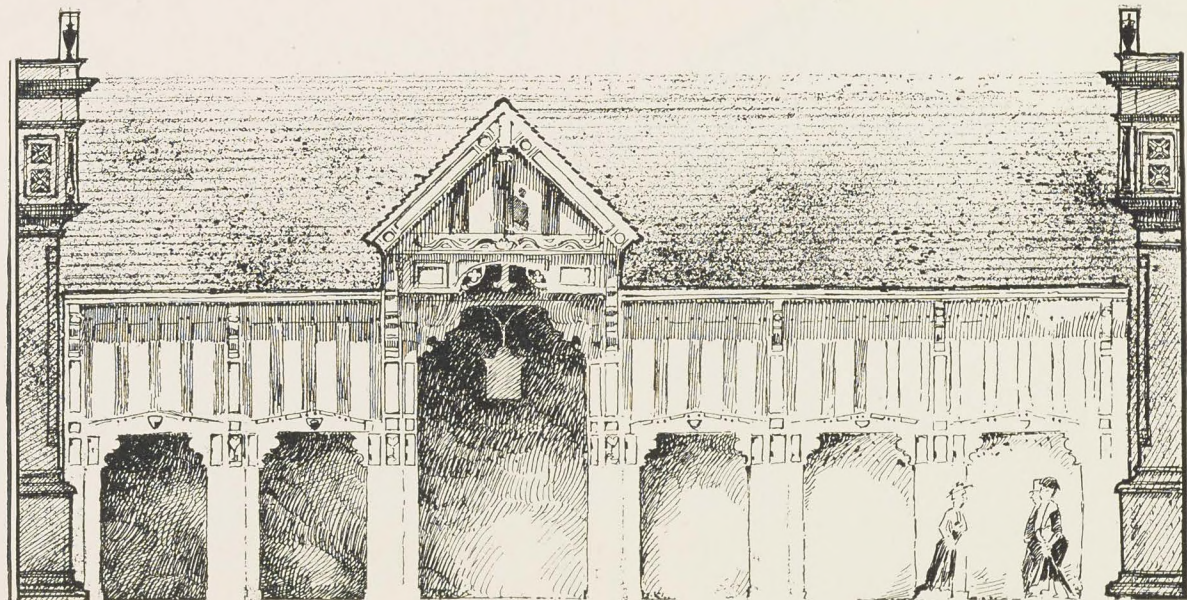
Jersey City, New Jersey.

No. 42.

50 inches High,
12-inch Dial.



Closing-out Price,
\$15, net.



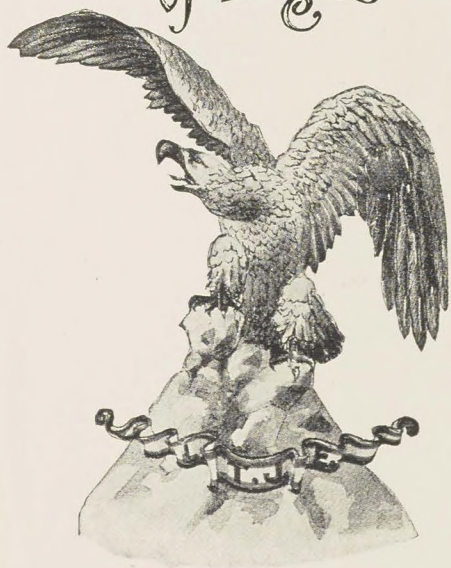
We illustrate above our Hall Clock Exhibit at the Louisiana Purchase Exposition. We have endeavored to make this the most unique and finest display of Hall Clocks ever made. We cordially invite the Trade when visiting the Exposition to make their Headquarters at our Pavilion, Blocks 36 and 37, Varied Industries Building

GEO. W. SMITH & CO., INC.,

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*Fraternal Order
of Eagles*



In Fraternal Order of Eagle, as well as Benevolent Protective Order of Elk Goods, we are specialists. We carry everything from silver buttons to the most expensive charms. This is a class of trade to cater to, and it will pay you to lay in a stock of their emblems. They sell at all seasons of the year.

Let us send you a selection package.
We should like to give you an idea of
the range of prices and patterns.
Designs submitted and prices quoted for
Past Exalted Ruler presentation charms.

HENRY FREUND & BRO.

The Jewelry House

9 Maiden Lane, NEW YORK

Jewelry, Watches and Diamonds



Grand Opening of the World's Fair

A Wonderful Architectural Picture—Immense Industrial Palaces and Gorgeous Decorations

THE largest and most magnificent exposition in the history of the world was opened with great splendor and *eclat* at St. Louis, Mo., on April 30th. Any attempted description of it in the space at our disposal would be futile. No one, however vivid his imagination, can conceive of its immense magnitude, impressive beauty and intense interest until he visits it. The 1904 World's Fair is the only great exposition to be complete and ready for the opening of the gates on the time appointed. The following will interest those of our readers who visit the Fair:

The Inside Inn solves one great problem—hotel accommodations. A month before the opening this great hostelry, with accommodations for 6000 guests, was ready for the reception of guests. It is the largest hotel in the world, and is entirely within the Fair grounds. Features of its equipment are 2500 sleeping rooms. A force of 1800 trained employees are required to operate the hotel. The rates prevailing at the Inside Inn are controlled by the Exposition management, and they do not exceed those charged at any first-class hotel in St. Louis in ordinary times. On the European plan the World's Fair visitor may be comfortably located for \$1.50 per day, including admission to the Exposition. Prices for a luxurious room, with bath, range up to five dollars per day.

Thirty-eight of the states of the Union have erected magnificent club houses in the wooded section of Forest Park, and have created what is called the Plateau of States. Every type of approved architecture is represented. The World's Fair visitor, no matter from what section, will find the hospitable portals of these mansions always open to him and he will receive a most cordial welcome from those in charge.

Locomotion in the Fair

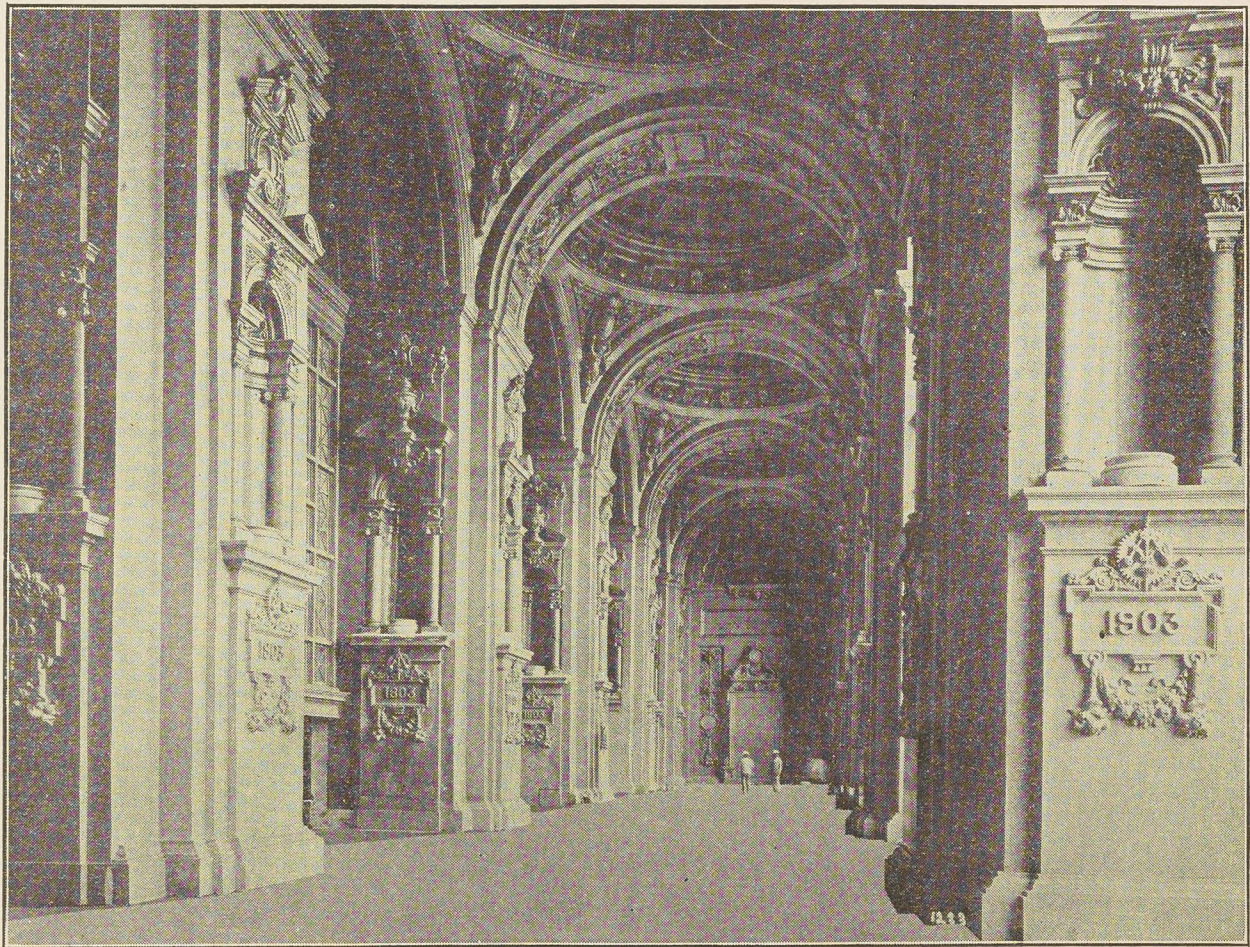
Despite the immensity of the World's Fair grounds covering, as they do, 1240 acres—two square miles—every section is of easy access. Thirty-five miles of splendid roadway intersect the grounds. The Intra-Mural railroad, with fourteen miles of tracks, whisks the visitors to any section in rapid time on the payment of one fare. The miniature steam railways have twelve miles of track and complete the most elaborate transportation scheme ever designed for any exposition.

The cascade feature of the World's Fair, the center of the "main picture" for beauty and grandeur, totally eclipses all the courts of honor of former great expositions. Crystal waters, springing from three monumental fountains, plunge down as many cascades a distance of 300 feet, with a fall of eighty feet, and enter the grand basin. Here the waters divide and fill two miles of marble-riveted lagoons two miles in length. Beautiful and picturesque small craft ply these waters and afford the World's Fair visitor an unrivaled view of the majestic architecture of the splendid structure of the main exhibit palaces.

Eleven million dollars will scarcely cover the United States government's participation in this greatest of all World's Fairs. The government building is the largest, handsomest and most expensive ever built for exposition purposes by any government. In it are unrivaled displays by the

Smithsonian Institute, the Navy, War, Post Office, Treasury, Agriculture and other departments. The display of big guns is made outside of the building, and the largest and most powerful guns ever made are mounted and manned by Uncle Sam's most expert artillery men. The government fisheries, in one of the most graceful of the many handsome structures, possess exhibits of the keenest interest. A group of sea lions, a school of sturgeons, and other animals and fish of the sea, sport in an immense pool in the center of the structure. The denizens of the sea, lakes and streams are shown in great glass tanks of clear water. Interesting exhibits are made of fish products, fish culture and models of government fishing boats are shown.

For the first time at any exposition a real mint may be seen in operation at the World's Fair, in the government building. At the close of the Exposition the machinery will be installed in the mint at Denver and will continue



The Magnificent Entrance to the Machinery Building

to make coin of the realm as a part of the excellent coinage plant in that city.

A great whale was taken off the coast of Newfoundland last year. Exact measurements were made and this monster of the deep was reproduced in *papier mache* in the most minute detail. It is suspended by cables from the ceiling in the big government building, and may be seen from any point in the great structure.

The Pike or Midway

The Pike is the great amusement street of the Exposition, and it is more than a mile long. On both sides of the wide, vitrified brick boulevard are assembled the shows of all nations. To attempt to enumerate the great list of interesting attractions would be to portray all the quaint customs of all the queer peoples of the world, together with the amusements of the people of all lands. The games of ancient Rome, the divertissements of the Orient, the latest and greatest creations of the most famous illusionists, the most comprehensive collection of wild and trained animals, and all other forms of entertainment to amuse and instruct find a place in this unparalleled resort.

China, that most ancient of all nations, whose development has heretofore been shrouded in mystery, lifts the veil at the 1904 World's Fair and displays her progress and attainments. In the foreign section the National Chinese pavillion is among the most striking. It is a reproduction of the residence of Prince Pu Lun, of the royal blood, and that potentate is at the head of the Chinese Commission to the World's Fair and presides in person,



There are always more attractions about

WEISS JEWELRY
than you pay for. Don't forget that our offices are your offices at all times—especially during the World's Fair. We want you to see us while in the city.

WEISS JEWELRY MFG. CO.
GLOBE-DEMOCRAT BLDG.,
SAINT LOUIS, U.S.A.

Rodgers—Advertect—St. Louis

News from the Northwest

Spring has at last opened the door in our section and is all the more welcome because long acoming. Farmers have all been busy as bees getting in the seed for the new crop. Naturally, business has been a little quiet because of this, although some sections report an improvement. Jobbers report all things moving nicely. Collections are coming a little better, but there is still plenty of room for improvement. Retailers are buying only small bills, but meeting them promptly with a few exceptions. That there will be an immediate improvement is not doubted, as warmer weather will loosen up everything and the "shirt-waist girl" will soon be demanding the novelties in jewelry she is entitled to. May will bring the commencement exercises in the schools and the beautiful girl graduate will be looking for her commencement present, and it behooves the jeweler to be prepared to catch his share of business. The June bride is also rehearsing, and her friends will be looking over stocks to see where something new and appropriate can be found. All this means business for the retail jeweler.

C. E. Wisard, Howard, S. Dak., has quit the jewelry line

G. T. Babcock, formerly with H. Buss, Clear Lake, Iowa, has started in business at Waverly, Iowa.

J. F. Knapp succeeds E. W. Moehler at Mason City, Iowa.

A. J. Stebbins, Alexandria, S. Dak., has gone to California.

F. W. Seaman, lately with I. M. Radabaugh, Hastings, Minn., has begun business at St. Croix Falls, Wis.

W. A. Swain's Sons, Osage, Iowa, are in their new store. We give "Ike" his just deserts in congratulating him on the enterprise and push which have brought his business so well to the front.

G. W. Dillon, Jr., Manly, Iowa, has gone to Peoria, Ill., where he will take an all-around course at the Bradley Polytechnic Institute.

F. F. Heidel has begun business at Elma, Iowa.

Frank Waterbury, of Sischo & Beard, St. Paul, has returned from his maiden trip through Montana and reports that section in fine condition.

Louis Hansen, Devils Lake, N. Dak., has plans already for a new residence, which he will erect as soon as the weather permits.

The Anchor Silver Plate Co., St. Paul, are preparing work on their sample line and expect to get at work in earnest next month.

H. Piesinger has quit business at Montgomery, Minnesota.

Julius Anderson, Mora, Minn., suffered a total loss of his stock by fire last month. Fortunately he was insured, and with his usual push will soon be in shape again.

M. Belond has begun business at Hibbing, Minn.

F. D. Day & Co., Duluth, Minn., have put in a new steel ceiling and new ceiling lights, which add considerably to the looks of the store.

John Caesar, Stillwater, Minn., has repapered his store. While at work the paper hangers dropped a plank from their scaffold and managed to break one of his 12-foot plate show cases.

Geo. H. Lang and Christ. H. Nerbovig, Mankato, Minn., have been having hospitals at home the past month, their wives being ill. We hope to be able to write "all's well again," very soon.

U. G. Dake, Chippewa Falls, Wis., has repapered and painted his store. "Bound to keep things bright" is his motto.

Wm. Landmesser, lately with Frank Hyde, Sioux Falls, S. Dak., is now at the bench for Franklin Wells, Jr., Yankton, S. Dak.

W. H. Haynes, Alexandria, S. Dak., has gone to spend a short time on his claim in Wyoming.

T. Phillips, Chippewa Falls, Wis., was all smiles last month owing to the arrival of a 15-pound boy at his home.

Judson A. Beard, of Sischo & Beard, St. Paul, has completed his first swing around his new territory, which he says is the best in this section.

W. J. Withers has quit business at Jackson, Minnesota.

J. Haga, formerly in the business at Hector, Minn., has gone on the road for Frank Hyde, Sioux Falls, S. Dak.

G. H. Woodgate, Slayton, Minn., expects to return this month from a three-months' visit in England.

Nels S. Nelson, Hutchinson, Minn., has advanced another notch in his profession and taken possession of his new store—a good sign of attentiveness to business.

Martin J. Swedlund has left Neche, N. Dak., and gone to work for Paul V. McCoy, Minot, N. Dakota.

E. C. Schow has reopened his store at Ashby, Minnesota.

Chris. Rygh, Herman, Minn., has sold out his drug department and gone to California.

C. C. Raddatz, Waseca, Minn., has moved to Lewiston, Minn., where he has bought out A. Knowles.

Christ. Arveson, Sleepy Eye, Minn., was recently elected city treasurer there—a good selection, which shows the wisdom of Sleepy Eye citizens.

Jac. Gruesen, Duluth, Minn., has completed his new cut-glass parlor and otherwise improved his store. The front row will always find Jac. in a prominent seat.

E. F. Minder, St. James, Minn., who has been sick practically all winter, is improving and expects soon to be able to be as good as ever.

Theo. G. Mahler, Le Sueur, Minn., is now comfortably settled in his new store, which is certainly a gem and speaks loudly of Theo's progressiveness.

W. C. Hudson, a graduate of Stone's School, St. Paul, has bought out M. E. Brown, Graceville, Minn.

Ignatius Reiner, Hutchinson, the genial president of the Retail Jewelers' Association, of Minnesota, has again proven his popularity with his neighbors by being elected alderman at the last election.

Miss Francis B. Kelly, for the past three or four years with E. A. Brown, St. Paul, will be married at Albany, N. Y., June 1st, to Pierce C. Calton. They will reside at Detroit, Mich. Miss Kelly was a general favorite in the jewelry trade, and while we will miss her, we heartily congratulate the happy couple and wish them the best to be had in their new home.

P. C. Nelson, Jackson, Minn., has moved to his new store room, which is quite an improvement over the old one.

Visitors to Twin City jobbers the past month were: Paul Berns, Shakopee, Minn.; Alfred T. Nelson, Red Wing, Minn.; Julius Anderson, Mora, Minn.; P. L. Lillie, Spring Valley, Wis.; O. A. Johnson, Elbow Lake, Minn.; S. C. Hone, Osceola, Wis.; M. Belond, Hibbing, Minn.; C. C. Raddatz,

Lewiston, Minn.; W. W. McGuire, Northfield, Minn.; John Saxine, Prescott, Wis.; H. W. Counter, Milbank, S. Dak.; W. C. Hudson, Graceville, Minn.; F. Willman, Stillwater, Minn.; F. W. Seaman, St. Croix Falls, Wis.; I. M. Radabaugh, Hastings, Minn.

World's Fair News

It will doubtless be of interest to the readers of THE KEYSTONE to know about the routine details that will be put in force, now that the great fair has opened its gates to the world. Numerous inquiries have been received by exposition officials during the past month, one from A. K. Wick, president of the World's Fair Tenting Association, asks important questions, to which we add the official answers. Bear them in mind, as they will be useful to you when you visit the fair:

First. Is there any Sunday opening of the fair at all? The answer is that the act of Congress provides that the exposition shall be closed on Sunday. The provision will not be in any way evaded. Only those persons who have business on the grounds, and who are accordingly equipped with passes, will be permitted to pass the gates on Sunday.

Second. Are children admitted at a reduced price? Children between the age of five and twelve years are admitted for 25 cents. Children under five are admitted free. Season tickets for children are sold for \$15; those for adults cost \$25.

Third. What are the opening and closing hours of the fair? The exposition gates will open for employees at 6 A. M., visitors at 8 A. M. The exhibit palaces open at 9 A. M. and close at sunset. No persons will be admitted to the grounds after 11 P. M., and those already within the grounds will be required to make their exit as soon as possible.

Fourth. May camp stools be carried into the grounds? Director-of-Concessions Gregg announces that the bringing of camp stools into the grounds will be forbidden, for the reason that if this was sanctioned it would be extremely difficult to frame rules to protect the seating concessionaire in the grand stands. "If necessity is found to exist for camp stools later, it will be very easy to arrange for their admission," says the director of concessions.

Jewelry Trade Exhibits

The jewelry trade will be well represented among the exhibitors at the World's Fair. Tiffany & Company, the widely known retail house of New York, will have an extensive and valuable exhibit of rich jewelry and gems. The Gorham Manufacturing Company will make an extensive and rich exhibition of their wares, and the Mermod and Jaccard Jewelry Company, St. Louis' leading retail firm, will have the most elaborate and elegant exhibit that human ingenuity can conceive in the manufacturing and retail jewelry line. It has been prepared by the most skillful artists in the trade. The exhibit building of the Mermod & Jaccard Company will be named in the Golden Pavilion, and it will be made of solid gold, with the exception of the glass in the display windows. The structure will have a frontage of 65 feet, an altitude of 42 feet and a depth of 25 feet. There will be four entrances, and the floor space will be arranged in the best possible manner for the accommodation of visitors and the display of stock. In addition to the above, the foreign trade will make extensive exhibits, especially England, France and Germany. The trade in Paris, France, has perfected arrangements to make a very profuse display of its lines during the exposition. The stock will represent a cash value of \$3,000,000.

"There is no stone as valuable as The Keystone."—S. Sve, Jeweler, Pana, Illinois.

ESTABLISHED 1854.

INCORPORATED 1893.

JUERGENS & ANDERSEN Co.

DIAMONDS, PEARLS,
MAKERS OF FINE JEWELRY,
92 TO 98 STATE STREET,
CHICAGO.

23-25 LOOIJERSGRACHT, AMSTERDAM, HOLLAND.

OMEGA



MOVEMENTS

ARE FINE TIMEPIECES.

All made with Lever Escapements and Double Roller.

Pendant Set.

Fitting American Cases.

Made in
6 Different
Grades.

10 Ligne.
11 Ligne.
O Size.
12 Size.
16 Size.

From 7 Jewels to 21 Jewels,
Adjusted to heat and cold,
and 5 Positions.

SOLD ONLY TO LEGITIMATE JEWELERS.
PRICES NOT ADVERTISED IN ANY JOURNAL.

A TRIAL WILL CONVINCE YOU OF THEIR MERITS.

SEND FOR PRICE-LIST.

EDMOND E. ROBERT,
3 Maiden Lane, NEW YORK.

SELLING
AGENTS.

CROSS & BEGUELIN,
17 Maiden Lane, NEW YORK.

Providence and Attleboro

Interesting Phase of the Tariff Question

An interesting situation developed recently in the campaign that is being waged by the Jewelry Tariff Committee of the Attleboros against the consummation of a reciprocity treaty with Canada. The Massachusetts Legislature had before it a bill to memorialize Congress in favor of such a treaty, and the bill was referred to the Committee on Federal Relations. April 12th was fixed as the final day for the discussion of the bill, and Sidney O. Bigney, chairman of the Tariff Committee, the most militant spirit in the anti-reciprocity propaganda, appeared in person to oppose the projected bill. He showed the grave injury that would result to the jewelry industry by the enactment of any such measure, and said it would be "an entering wedge of free trade in the guise of reciprocity." Opposition to it was also forthcoming from the representatives of the woolen milling, cotton milling and finishing interests. In the meantime a movement was being carried on in favor of the bill in no less interested a center than Attleboro. On the day of Chairman Bigney's appearance at the Massachusetts Legislature, an agent of the Boston Chamber of Commerce had circulated among the jewelry manufacturers of Attleboro a petition urging the passage of the bill. It has been alleged that by a verbal adroitness the real purport of this petition was so well obscured that many jewelers unwittingly signed it. Upon learning this, Mr. Bigney immediately brought the matter under the notice of President Thresher, of the New England Manufacturing Jewelers' and Silversmiths' Association through the medium of a letter, which was published in the *Attleboro Sun*. He also proceeded to issue for the signatures of local jewelers an emphatic protest against the measure which some of them had been unconsciously trapped into endorsing.

The Board of Classification of United States General Appraisers had recently before them the protest of Julius Eichenberg, of Providence, against the assessment of duty by the collector at that port at the rate of 60 per cent. ad valorem on an importation of decorated imitations of precious stones. This assessment was in accordance with paragraph 60, of the tariff act, and the importer, in his protest, claimed that the merchandise was dutiable at 20 per cent. ad valorem, under paragraph 435, of the act, as imitations of precious stones not set, and not exceeding an inch in dimension. The board decided, however, that the words "not engraved, painted or otherwise ornamented or decorated," as occurring in paragraph 435, excluded such imitations of precious stones as have undergone a superadded process of ornamentation or decoration. The board also maintained that imitations of semi-precious rock crystal composed of glass, not exceeding 1 inch in dimension, and not mounted or set, are dutiable at the rate of 60 per cent. ad valorem under paragraph 100, when such articles subsequent to their manufacture into the condition that constitutes imitations of precious stones, are ornamented by painting, and not at 20 per cent. under paragraph 435, the provision of the act under which the importer claimed the goods to be dutiable. The protest was accordingly overruled and the collector's decision affirmed.

The Second Precinct, the triennial meeting of which took place recently, is an organization of

legal voters of Attleboro, which forms a link with ante-Civil War days. Its activities must possess an interest for the jewelry fraternity, because it is the creation of a jeweler now deceased, namely, Abiathar A. Richardson. Its solitary function is to administer the fund of \$25,000 originally bequeathed by him and which has been swollen by subsequent accretions. The earnings of this fund are apportioned by the Second Precinct to the local public schools. The municipality has taken over all the other prerogatives which it possessed. Three years constitute the term of office of its trustees. Well-known jewelers recently elected to this role include the following: Everett S. Horton, of the Horton, Angell Co.; Charles E. Bliss, formerly of Bliss Bros.; Mark E. Rowe, of P. J. Cummings & Co.; Harry P. Kent, of F.W. Weaver & Co.; Louis J. Lamb, of C. H. Allen & Co.

Death of Christopher Duckworth

After an illness of two years from a complication of diseases, Christopher Duckworth, long known in the jewelry trade of this country, died on Monday night April 4th, at his home in Pawtucket. It is well nigh half a century ago since deceased first came to Pawtucket. He was then fifteen years old, and began an apprenticeship with the firm of Hunt & Owen, to which firm he was afterwards admitted as partner. Twenty years ago he went into business for himself, but retired from active commercial life in 1893. He served in the Civil War as captain in the Eighth Rhode Island Volunteers. He took a practical interest in politics, had been Harbor Commissioner for the State of Rhode Island for twenty years prior to his demise, and had served two terms in the State Legislature. A son and a daughter survive him, the former being Chas. B. Duckworth, with the Mauser Manufacturing Co., and the latter Mrs. W. J. Small.

The C. H. Eden Company have taken possession of the new factory building just completed for them by Jas. E. Blake, adjoining the latter's factory. The new building is one of the largest factories in Attleboro, and contains 27,000 square feet of floorspace. The Eden Company will occupy the two upper floors and part of the basement, but expects to rent out the balance of the ground floor. The firm will continue to make a general line of plated ware of low-priced goods, and in their new quarters will be equipped to increase their output.

Miss Mabel I. Hamilton, the youngest daughter of Ralph S. Hamilton, the well-known chain manufacturer, was married April 16th to Mr. Richard W. Blanding, son of a prominent wholesale druggist, of Providence. The ceremony was performed in the Central Congregational Church, and was attended by the leading society of the city and many friends and relatives from distant points. After the wedding the young couple left on an extended tour. On their return they will make their home in Providence, where the groom is engaged in business with his father.

The marriage of Harold Webster Ostby, of Providence, to Miss Elizabeth Cooke Fitch, took place last month at the home of the bride's parents, 16 East Eighteenth Street, New York. The ceremony was performed by Rev. Abott E. Kittredge in the presence of numerous friends and relatives of the bride and groom. The bride was attended by the Misses Doris N. Fitch, Helen Ostby, sister of the bridegroom, and Bessie Warner Bailey. Erling C. Ostby was the best man, and Morton Cross Fitch and Littleton Fitch, brothers of the bride, Raymond E. Ostby and Ralph Ostby, of Providence, brothers of the bridegroom, Wm. P. Chapin, Jr., and Howard H. Wilkinson, of

Providence, were ushers. The marriage ceremony was followed by a reception, which was attended by a large number of guests.

The firm of F. H. Sadler & Co., of Attleboro, has been converted from a partnership into a corporation, and the name of the concern changed to the F. H. Sadler Co. The company announces that there will be no change in the quality of the goods manufactured, nor will there be any deviation from the square dealing and courtesy to customers by which the policy of the firm has always been characterized.

The following jewelers of Attleboro are among the officers recently elected by the Odd Fellows' Building Association: Sidney O. Bigney, of S. O. Bigney & Co.; Emmons D. Guild, of the W. H. Wilmarth Co.; Fred L. Torrey, George H. Merrick David E. Makepeace, of the D. E. Makepeace Co.; William L. King, of E. D. Gilmore & Co.; Albert S. Ingraham, of A. S. Ingraham & Co., and Maxy W. Potter, of J. M. Fisher & Co. This association controls a large business block which it recently erected in the town.

Sidney O. Bigney, of S. O. Bigney & Co., Attleboro, achieved a notable victory in the political arena last month when he was selected by a large majority at the caucus and finally by a unanimous vote of the delegate convention to represent the Fourteenth Massachusetts Congressional District in the approaching Republican National Convention. At the Attleboro caucus, which was the largest of its kind ever held there, Mr. Bigney obtained 578 out of a total of 713 ballots, or more than 81 per cent. of the whole. Almost all the delegates chosen at caucuses in other towns and cities were pledged to him. The final convention was held at Brockton on April 14, when Mr. Bigney's nomination was carried unanimously on the motion of Hon. Silas D. Reed, of Taunton, who characterized him as "a man of sterling integrity, of business acumen, with ability to speak for the best interests of the party." On being presented to the convention Mr. Bigney received an enthusiastic ovation. He delivered a forcible speech, in the course of which he heartily thanked the convention for the honor which it had conferred upon him. He was not, he said, a politician in the usual acceptance of the term, but a plain business man looking for the best interests of the country, especially that section of it.

According to the statistics recently issued by the Census Bureau the population of Attleboro has grown from 11,335 in 1900 to 12,463 in 1903. While the growth thus indicated is not as great relatively as was that during the "boom" years, it is nevertheless substantial and satisfactory. Above all, it seems to prove that the period covered was not so much one of industrial slackness as was the preceding era one of somewhat extraordinary animation. It is interesting to note also that the population of the town as officially stated is the normal one, as it is estimated that when the jewelry shops are at their busiest Attleboro's inhabitants number 13,500.

The annual meeting of the North Attleboro Country Club was held at the Emerson House last month, when the election of officers took place. It is noteworthy that every one of these officials is connected with the jewelry business. They are: President, G. Herbert French; vice-presidents, Edgar L. Hixon, Orrin W. Clifford and Ira Richards; secretary and treasurer, Herbert J. Straker; executive committee, Edgar L. Hixon, G. Herbert French, Ira Richards, Dr. Edwin E. Hale, Fred. A. Howard, Clarence W. Fisher, John E. Tweedy, Orrin W. Clifford and Alton H. Riley.

1904

"THE GREATEST EVER."

1904

FOR 7 MONTHS ST. LOUIS OFFERS TO THE WORLD
THE GREATEST AND GRANDEST

WORLD'S FAIR

CIVILIZATION HAS EVER SEEN.

We expect every Jeweler in the United States to be a guest of St. Louis, some time during the above period, and extend a general welcome to visit our MODERN and UP-TO-DATE JEWELRY ESTABLISHMENT, where we are prepared to show a choice and well-selected stock, complete in every detail, of

DIAMONDS
WATCHES
JEWELRY
OPTICAL GOODS
MATERIAL

1904

1904

BAUMAN-MASSA JEWELRY CO.

COMMERCIAL BLDG.

ST. LOUIS, MO.

OLIVE & SIXTH.

Cleveland and Northern Ohio

The conditions of all classes of trade have been very unfavorable during the past month. In the first place the weather was very inclement, and spring weather a thing so far unknown. This has had a marked effect on the retail trade of the city as well as the country merchants. Locally, there have been few weddings this spring, another somewhat depressing factor. There has been one redeeming feature which must not be lost sight of, which is that collections have been excellent.

A. T. Hubbard returned recently from a trip through the East.

Geo. W. Scribner and family have returned from a trip to Old Point Comfort.

F. L. Haldy has returned from a month's trip among the Eastern factories devoted to the making of gold jewelry and diamond-mounted goods.

C. K. Merrill of the Scribner & Loehr Co., has returned from a two-months' trip to the east coast of Florida. Mr. Merrill was accompanied by his family.

Richard O. Carter, formerly with Bowler & Burdick Co., and the past season with Greenleaf & Crosby, Jacksonville, Florida, has returned to this city.

The Webb C. Ball Co. have been appointed inspectors of watches for the C. P. & E. Electric R. R., as well as the C. & S. W. R. R. These are the most extensive electric suburban lines running out of the city to adopt the inspection service.

The past month has witnessed the passing away of another of the old jewelers of this city, in the person of Sylvester Hogan. Mr. Hogan for twenty-five years was one of the leading jewelers in this city and occupied the storeroom now used by the Cleveland National Bank, corner of Superior and Seneca. Twenty years ago Mr. Hogan took into partnership one of the pioneer millionaires of this city, and the firm became Hogan & Wade. Internal troubles soon arose and in a few years the house went out of business.

The Bowler & Burdick Co. have just completed extensive alterations in their storerooms in the retail as well as the jobbing departments.

The watchmakers of this city seem to have caught the microbe of moving in the spring, and as a result there have been more changes than any previous year. Fred. Schroeder goes from Bowler & Burdick Co. to Cowell & Hubbard Co.; Fred. Reiff, from the Ball Co. to Bowler & Burdick Co.; E. Murback, from Cowell & Hubbard Co., to Elyria, Ohio.

The Sigler Bros. Co. have completed their removal to 29 Euclid Avenue, and now have a store with more floor space than the former location with its three floors.

E. L. Wilsdorf, 43 Arcade, has purchased the wholesale stock of the F. Sands Jewelry Co., 50 Euclid Avenue. Mr. Wilsdorf has closed out his retail store and will give his attention to the jobbing trade.

Ginsburg & Tronstein are a new firm of manufacturing jewelers, who have their plant at 143 Euclid Avenue, in the Republic Building. They have put a salesman on the road to market their mountings.

Thos. A. Craig, Macon, Mo., was a visitor in this city among the trade during the past month.

J. H. Heiman, 144 Euclid Avenue, was recently robbed of a number of scarf pins, cuff buttons, etc., which were taken from his show case. This makes the fourth similar robbery in two years that Mr. Heiman has had.

Chas. F. Pecoy, with the Cowell & Hubbard Co., lost his father by death last month. Mr. Pecoy died in Dayton, but was buried here.

L. Seewald, Tiffin, Ohio, a pioneer in the jewelry business of his town, died last month at a ripe old age.

D. R. Funk, West Salem, Ohio, has sold out W. H. Hines. Mr. Funk will remove to Bellefontaine, Ohio, and start anew.

J. Barber, Salem, Ohio, will open a new store in a few days.

The following Ohio jewelers visited the city during the month: A. E. Kintner, Painsville; E. N. Davis, Kent; Harry Downs, Bellevue; S. J. Gilger, Norwalk; L. J. Goddard, Ravenna; Walter Dueble, Canton; J. Barber, Salem; A. O. Amsden, Ashtabula; W. P. Crouthers, Oberlin; Mr. Dagager, Oberlin; Jno. W. Clark, Mount Vernon; J. O. McClintock, Chagrin Falls; B. F. Phillips, Cuyahoga Falls.

Omaha and the West

Outlook Not So Promising

The Omaha wholesalers have been complaining considerably of late concerning the dullness of trade, especially in coast territory. Although there has been a remarkable revival in the building trade in this city, it seems that the general lumber trade on the coast has not been stimulated. In fact, many camps have remained closed beyond the usual time for opening in the spring and the customary demand for lumber is apparently lacking. In consequence business in the lumber camps of Washington and Oregon has been decidedly slack. Some of the Omaha jobbers have given their Pacific coast representatives temporary vacations. In the intermediate territory business has been fair, whereas in Nebraska while there has been no positive boom, yet a steady improvement is noted. This is perhaps due to the fact that the soil conditions have been greatly bettered by generous rains and to the knowledge that winter wheat did not suffer as much as had been anticipated as a result of the dry winter. Consequently the prospects in this immediate vicinity are considerable brighter than a month ago. The jobbers, however, have apparently convinced themselves that the crest of the wave has been reached and that what with the approach of the presidential election and a continued stringency in the money market, the outlook is not so favorable as it was at a corresponding period last year.

Removal to Chicago

E. A. Dayton & Co., wholesale jewelers, are removing their stock to Chicago, where the company will engage in business at 151-153 Wabash Ave.

Mr. George N. Strawn, chief of the office force, and all employees now connected with the company, will remain with the company. L. F. Andrews and F. J. Neasham, traveling salesmen, will be retained and in addition to E. A. Dayton, who has always been a successful salesman on the road, another traveling representative will be added. The removal of this company takes from Omaha one of its leading wholesale jewelry houses. It has been in business here for fourteen years. Mr. Dayton came to Omaha from Nevada, Iowa, where he was engaged in the retail business. The firm has always dealt extensively with the Iowa trade and will therefore be in a better position to cater to this trade with Chicago as headquarters.

From Rushville and other parts of Nebraska and surrounding states there have come to this city

recently many packages of "grave teeth." These, as is generally known among jewelers, are elk teeth which have been buried in Indian graves and dug up by the whites or mayhap by Indians more avaricious than superstitious. The stringent measures which have been taken in the last two years to prevent the slaughter of elk by hunters who cared only for the teeth, have at length created quite an industry in "grave teeth." While "grave teeth" are as solid and as well formed as the fresh teeth, they have become discolored by their sojourn underground for ten, twenty, thirty or perhaps fifty years. Some of them have taken on the bright red color of the blanket in which the Indians wrapped the body of the corpse. Other teeth have become dark or reddish, brown, greenish and pink. These teeth are, of course, inferior in quality to the fresh elk teeth whose value depends either upon their pure whiteness or the delicate brown hue that has found such favor. Nevertheless the "grave teeth" when highly polished and nicely mounted sell for about one-third or one-fourth the price of the fresh teeth.

The Indians were very fond of elk teeth for personal adornment and sometimes they improved upon nature by quaint carvings in the ivory. Albert Edholm, of this city, a prominent jeweler, has an elk tooth which bears the graceful outlines of a proud elk carved with rare skill by the celebrated Shoshone chief, Washakie, after whom Fort Washakie, Wyo., was named.

A handsome pearl was found in the shell of a fresh water clam in Horseshoe Lake, a small body of water about fifteen miles north of here.

Fire, which destroyed four store buildings at Sterling, Nebr., swept away the brick jewelry store of Jule Schneider. The store was owned by the Farmers' and Merchants' Bank, which carried \$1500 insurance, the jewelry stock being insured for \$3000.

The Shook Mfg. Co., has sold a store at Silver City, Iowa, to C. W. Sawyer & Co. The Shook company has several other stores for sale.

Hall & Co., is the name of a new jewelry firm at Wausau, Nebr.

Mr. and Mrs. D. R. Wilson, of Shenandoah, Iowa, were in the city recently.

Jeweler Hawthorne, of Kearney, Nebr., was in the city calling on the trade recently.

Harry Dixon, jeweler, at North Platte, was in the city recently.

Dr. Tarbox, of the Omaha Horological and Optical Institute, has returned from a visit to Chicago.

M. W. Ludwig, who has been attending the Omaha Horological and Optical Institute, has accepted a position at Woodbine, Iowa.

Mr. Bryant has established a new jewelry store at Woodbine, Iowa.

S. Lindsay, a prominent jeweler of this city, has just recovered from an attack of the grip which confined him to his home for several weeks.

Albin Kaas, of Lincoln, has been employed as jeweler by Samuel Lindsay.

E. G. Blang, a jeweler, at Genoa, has sold out.

C. S. Steiner, of Newman Grove, Nebr., has established a jewelry store.

G. E. Keirstead, of Tilden, Nebr., and A. A. King, of Algona, Iowa, are attending the Omaha Horological and Optical Institute.

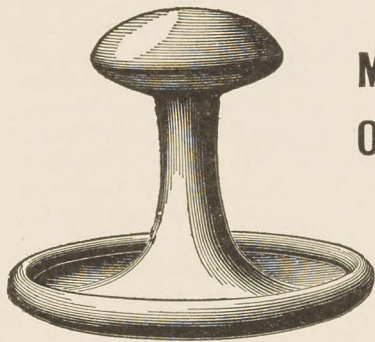
S. R. Schultz & Co., of Messina, Nebr., have sold out to H. Newlan.

C. Walstrom has gone into business at Oakland, Nebr.

T. P. Owen has bought the jewelry business of C. S. Payne at York, Nebr.

The Giant of Collar Buttons

in Quality
in Sales



The Standard Collar Button.

Millions of Krementz
One-Piece Collar Buttons
made, and are sold
all over the world.

WHY?

Because of their HIGHEST QUALITY, BEST CONSTRUCTION, GIVING THE MOST WEAR, AND GREATEST COMFORT and their IRON-CLAD GUARANTEE.

To verify this we invite the trade to read "The Story of a Collar Button, with Illustrations," which may be had FREE for the asking, and to try the experiment suggested on page 5 of that booklet, by which all may easily determine the exact amount of 14 K. gold in Krementz plate.

Extract from "Printers' Ink,"
Nov. 23, 1898.

The Little Schoolmaster now suggests, to every pupil in his class, to send a two-cent stamp to Krementz & Co., 49 Chestnut Street, Newark, N. J., and ask to be favored with a copy of their leaflet, "The Story of a Collar Button." Afterward, if any pupil will send to *Printers' Ink* another leaflet, new or old, that is half as good as this one, or that approaches it in excellence, the deserving student will be rewarded with one of *Printers' Ink's* souvenir spoons as an acknowledgment of his discovery and contribution. "The Story of a Collar Button" is the best piece of advertisement construction that has come to *Printers' Ink's* attention in the year of our Lord 1898.

Should you wish to utilize this booklet to increase your collar button business, we will, on receipt of your order, print your card upon and send you a quantity of them.

The several qualities of
Krementz One-Piece Collar Buttons are stamped
as follows, ON BACK:



Patent Sustained by United States Supreme Court.

Quality and Construction have made Its Reputation.

All Krementz Collar Buttons—of every quality—
are Manufactured by

KREMENTZ & CO.,

in their Factory

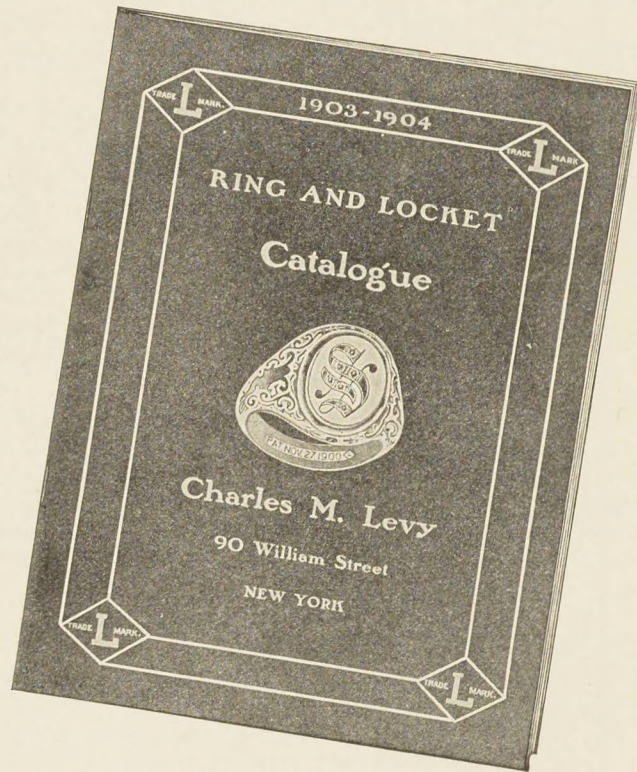
49 Chestnut Street,
NEWARK, N. J.

PARKS BROS. & ROGERS,
20 Maiden Lane, New York,
Selling Agents to Jobbing Trade.

Send for my Catalogue and buy your Rings from

The Manufacturer Direct

I make the
"L" Initial
rings;
Gentlemen's
stone, seal,
snake and
gypsy rings.
Ladies'
rings:
Diamond
combination
in opal,
pearls and
doublet and
Diamond
band rings.
Diamond
lockets.



Cut 1/4 original size.

Standard
quality and
reliable
goods.

The problem of making

Plain and Wedding Rings

and avoid carrying the same in stock has been solved satisfactorily by the Ring Making Outfit made by Ringset Company, Boston, Mass. See their ads. in KEYSTONE of November and December, 1903. The Company has reduced the price of their uncut mold blocks to users of their outfits to \$6.00 per gross of molds, which puts the outfit within the reach of all. The Company also makes Stone Ring Molds, Tiffanies, Belchers, Carbuncles, etc., in great variety, price \$1.00 per dozen. Catalogue on application. Molds patented. You can buy through any jobber.

RINGSET COMPANY,
Boston, Mass.

Kansas City and the Great Southwest

A Backward Spring Retards Trade

The backward spring promises to have an effect, and an unpleasant one at that, on trade conditions through Missouri, Kansas and their territory. Seldom has this section of the country had such a cold spring, and probably not more than once before has a snow storm occurred on the eighth of April. Even since then the thermometer has been so low that it is thought that much of the fruit is killed. The freezing point was reached several times during the third week of April. The country at large shows many evidences of an unusual season, for there has been but little planting, owing to the very wet and cold weather. Vegetation is retarded generally, and the whole country looks as it might look early in March in a warmer spring. Kansas City continues much the same, with a great deal of building going on, and the real estate business steady. The real estate transfers last month were not as great as expected, but even then they went ahead of the number recorded during the same time in 1903. The local election has come and gone, with an entire change of administration as the result. On the eighteenth of April Kansas City passed under a Republican administration, with J. H. Neff, publisher of the *Drovers' Telegram*, a stockyards trade paper, as the new mayor. Mr. Neff is not a politician, and ran as a business man's candidate.

Out-of-town firms have undergone several changes lately, and some important transfers have been made in retail jewelry stores in territory tributary to Kansas City.

F. L. Kassill has opened a new jewelry store in Pittsburg, Kans.

F. C. Shortless has located in Coalgate, Ind. Ter., and has established business there.

Alvin Gordon has located in Du Queen, Ark. The firm of Erickson & Howe, Douglas, Ariz., has been succeeded by H. E. Fox.

Sherman Schwartz has sold out his stock at Coalgate, Ind. Ter.

D. L. Brown, of Glasgow, Mo., has discontinued his business.

A. B. Phinney, of Overbrook, Kans., has sold out his stock to O. A. Karnes.

The Commercial Club, of Kansas City, has started on one of its annual trade trips, with a large company of Kansas City business men, intent upon working up interest in the city's business interests. The jewelry firms are quite well represented among the various commercial interests. C. B. Norton, of the C. B. Norton Jewelry Company, has gone on the trip, and the Edwards & Sloane Jewelry Company is represented by Leo H. Ludwig, of its material department.

W. E. Lacy, of Moran, Kans., whose stock was considerably damaged by fire recently, was in Kansas City last week, buying new goods to replenish it.

Grimm & Smith have opened a new store at Tenth and Walnut Streets.

E. L. Donaldson, of Edwards & Sloane's traveling force, who has been in Los Angeles for his health all winter, is reported to be much better, and will return to Kansas City in about a month.

Guy M. Shriner, of Gurney & Ware's, has been ill with pneumonia, but is now considerably better. He is convalescing at his home in Fairfield, Iowa.

J. R. Mercer has improved his show windows very much by the installation of new mirrors in

the end of each one. These mirrors are arranged so that they are capable of reflecting whatever is shown in the window forty-two times.

Frank Winkler, Jr., has gone to Lincoln, Nebr., to work for Frank Gardner.

The prizes for the Convention Hall Ball Masque Skating Carnival were selected from J. R. Mercer's store, and were probably the handsomest prizes ever given at an event of the sort in Kansas City. A large pearl crescent, gold-backed military brushes, gold and emerald cuff buttons, beaded chatelaines and handsome umbrellas were a few of the things given.

Among the out-of-town jewelers who have come to Kansas City wholesale houses during last month were: A. Rosenfield, Leavenworth, Kans.; Leslie White, Lees Summit, Mo.; J. S. Reed, Milan, Mo.; S. J. Huey, Excelsior Springs, Mo.; Otto Burklund, Osawatomie, Kans.; C. C. Stevenson, Pittsburg, Kans.; W. H. Meyer, Lawson, Mo.; Walter Sperling, Seneca, Kans.; S. E. Howard, Hastings, Nebr.; W. W. Whiteside, Liberty, Mo.; Gus. Willman, Lawrence, Kans.; W. F. Kirkpatrick, St. Joseph, Mo.; S. M. Coffman, Braymer, Mo.; J. H. Searfoss, Smithville, Mo.; C. A. Clement, Springfield, Mo.; Louis Megede, Richmond, Mo.; J. H. Schmidt, Leavenworth, Kans.

Birmingham, Ala., Letter

Continued Dullness in Business

For the first time in several years there is a quietness in business among the trades people of Birmingham so marked as to attract attention. A visit to the merchants elicits the information that everything is drifting, with all hands waiting for developments and the making of a new contract with the miners of Alabama. This latter matter is one of great concern in Birmingham, and if it were settled there would very likely be little to worry about. The new contract with the miners will be made the first of July, or at least that is the day set for it. There is some fear that the corporations and the men will not be able to get together. Last year the coal companies felt aggrieved of the result of arbitration with Judge Gray, of Delaware, as umpire. This year it is anticipated that the employers will make an offer and stand pat, letting the men strike if they see fit. If a strike follows, it means the cessation of work for about ten thousand men. So much wages out of circulation, even for a month, will have a bad effect on the trade of the city and district. This makes everybody careful.

Jewelers Satisfied

There is a safe volume of business, however, and none need be alarmed that it will not be large enough to meet all legitimate expenses through the summer. Jewelers are getting especially well cared for. They have a fairly good trade in staples, out of which they are making good profits, though there is little doing in novelties. Sales are made now and then in plate and cut glass for weddings and by new housekeepers, and occasionally a cup or other trophy. Strange, too, a number of diamond sales have been reported recently. One of the big stores reports a prospective deal for a stone running toward \$500, while a number have been sold for from \$100 to \$200. But the big business has been in watches. They have been in the main good watches for men who want them for regular and hard service. P. H. Linnehan has had one of the

best runs on watches in his business history. He is just now straightening out a large number, which he has found necessary to add to his stock.

Store Improvements

Quite a number of things of interest have been happening at the handsome store of F. W. Bromberg, which has been thoroughly overhauled and refinished both inside and out. Steel ceiling and new plate windows have been installed and a number of conveniences inside. Mr. Bromberg himself, has been in Mobile for several days seeing his relatives and attending to business matters. He will be back the first of next week, when he will have to buckle down close at the store because of the loss of one of his best men, Stewart Cummings, who has gone to Augusta to accept a position with William Schweigert & Co. Mr. Cummings came here several years ago to work for E. Gluck, to whose business Mr. Bromberg succeeded. He married one of the most popular young ladies of the city and has many friends. He secured the position which he will accept through an advertisement in THE KEYSTONE. His place will not be filled at Bromberg's for a few weeks; Ed. Herzog expecting to hold the whole thing down until just the man wanted can be secured.

Many Alabama friends know personally and with great pleasure Joseph E. Veal, of Rome, Ga., who celebrated his eightieth birthday last month. He is one of the oldest men in this part of the country connected with the sale of jewelry and kindred goods. The father of the writer has in his room at this time a clock from his stock that has been running over twenty years and is still keeping time. It was five years in service before it came into the hands of the present owner. It has in small letters across the face "Jos. E. Veal, Rome, Ga." He was the moving spirit as a member of the City Council in getting a waterworks system for his city, and seeing that it was built of Rome materials, pipe, pumps and all. He put in the first town clock, a Howard movement that cost \$800, with a bell that cost \$1000.

J. L. Gains, manager for the Calhoun Jewelry Company, who has been ill, is out again and will soon be well. He has had the store repainted and repapered. The street clock recently purchased was some time getting down to business, but is now in good order. Many compliments have been paid Mr. Gains for the placing of this clock in a crowded thoroughfare, and thereby giving the people such a convenience.

John Rosentihl, a member of the force at Abbott Brothers, and one of the oldest jewelers in the city, failed to secure a place on the board of revenue at the recent election. He had a large number of friends, however, and made a good race.

William Rosentihl, of Union Springs, Ala., father of John and William Rosentihl, of this city, is suffering much with his eyes. They will be operated upon in a few days by the eminent specialist, Dr. Calhoun, of Atlanta, and it is hoped his sight will be fully restored.

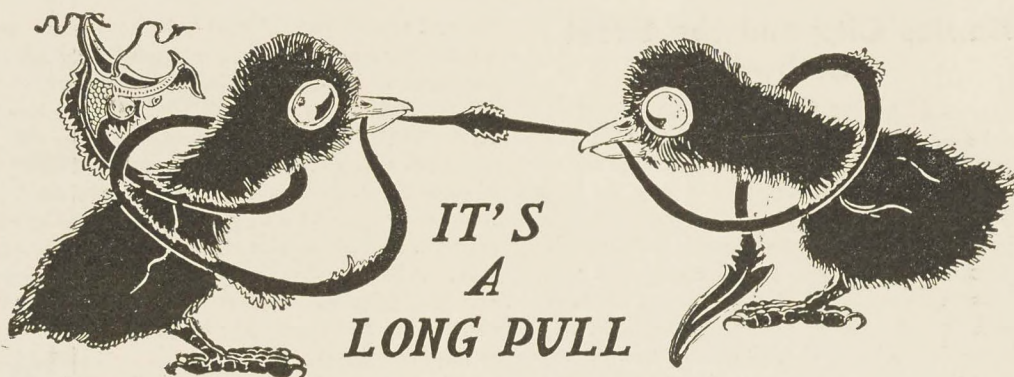
Murray & White, booksellers and jewelers, at Huntsville, have dissolved partnership; L. A. White retiring. M. R. Murray, who is now sole owner, will continue the business.

The Castleberry Optical Company has been organized at Montgomery, with capital of \$2000. The incorporators are C. E. Castleberry, A. W. Lebron and W. S. Keister. Mr. Lebron is at the head of the Lebron Jewelry Co.

W. C. Abbott, of the Abbott Jewelry Co., in charge of the optical department, has been ill for several days, but is better.

*"O Opportunity, thou didst come
to me when I was young;
And I didst look upon thy face
and knew thee not,
But scorned thee in my early
ignorance.
When wilt thou return, now
that I know thee?"*

SHAKESPEARE.



IT'S a long pull trying to get along in this world without a technical education, a definite trade or profession; something that you know how to do and do well, that is, of a money value to the community. Many factors have conspired to make the present and future the millennium of skilled watch-workers. The increasing value of time, the every-minute necessity for a good timepiece, the rigorous railroad watch inspection, the comfortable circumstances of the people, the incompetency of many watchmakers,—all these factors and others have increased the opportunity and salary of the man of skill who has mastered his craft.

All employing jewelers know well that the graduates of the Waltham Horological School are recognized as master watch-workers, that it has given the trade its most skilled and highest salaried craftsmen. If you are thinking of studying horology, as a beginner or to perfect yourself in the art, write us to-day and learn of our system and success.

WALTHAM HOROLOGICAL SCHOOL, Waltham, Mass.



CANDO Silver Polish IS THE BEST

for Jewelers to handle—it is a quick seller and positively superior to any known polish on the market. The patent cap used on jar for **CANDO** is made to perfection.

We call special attention to the importance of a package for Silver Polish that can be **RESEALED** after it is once opened.

Samples sent when requested. Correspondence solicited.

**PAUL MFG. CO.,
Boston, Mass.**



Just a Hint at Prices.

- ★ "STAR" Brand American Mainsprings. Extra quality, fine crocus finish, correctly gaged; made of the finest special steel; the tips are fitted perfectly. Price per dozen, 85c. net cash; price per gross, \$9.50 net cash.
- SPECIAL. We will give an elegant Solid Oak Mainspring Cabinet, with (20) drawers, worth \$6.00, with your first order for 1 gross of "Star" American Mainsprings, assorted to suit, for \$10.50 net cash.
- ★ "STAR" Brand American Balance Staffs, extra fine, made by the latest improved automatic machinery, correctly gaged, special 7 Jewel grades, 90c. 15 Jewel grades, polished, \$1.15. 17 Jewel grades, polished, \$1.35 per dozen, net cash.
- ★ "STAR" Brand American Balance Hole Cock and Foot Jewels in settings, made by automatic machinery correctly gaged, special, per dozen, 90c. net cash.
- ★ "STAR" Brand American Roller Jewels that will fit properly, 25c. per dozen; special, \$2.50 per gross net cash, including Oak Cabinet with 12 bottles.
- ★ "STAR" Brand American Long Case Screws that will fit properly, 20c. per dozen; special, \$2.00 per gross net cash, including Oak Cabinet with 12 bottles.

All the above prices are strictly **NET CASH**.
Orders filled in rotation as received.

H. B. Peters & Co., 177-179 Broadway, New York

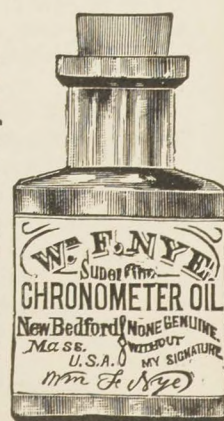
THE FINEST WATCH, CLOCK and CHRONOMETER OILS IN THE WORLD.



Always ask for Nye's.



Proved to stand every test.



Used by all the leading watch factories and by all watchmakers who value their work. Sold by all tool and material dealers.

Philadelphia Letter

Trade Conditions As in most other parts of the country, trade in Philadelphia has been greatly interfered with, of late, by the somewhat prolonged inclemency of the weather. Consequently, the jewelers, in common with the dealers in most other lines, report a quiet season so far. At this writing, however, there are encouraging prospects of the genial sunshine and bright skies that are characteristic of the spring-tide. It is safe to assume that this prospective atmospherical change will be accompanied by a general revival in trade.

Record-Breaking Coinage Forty-two tons of gold were converted into coins in the Philadelphia Mint during the week of April 11th to 16th.

This vast coinage in so short a time not only breaks all previous records of quick coinage in this country, but is said to be unparalleled in the mints of any other nation. From February 6th to April 16, 1904, there has been coined in the local mint \$60,180,380 in \$20 gold pieces. The weight of the gold required to be operated upon to produce the week's coinage was over forty-two tons, or seven tons per day. The deliveries during the week beginning Monday, April 11th, and ending on Saturday, April 16th, inclusive, aggregated \$11,302,600 gold coinage, an average of nearly \$2,000,000 per day; on the last day of this record-breaking week the day's delivery was \$2,500,000, also a record-breaker. The coinage of \$20 gold pieces, if represented in silver dollars laid side by side on a flat surface, would cover an area of twenty-two square acres. Or if these silver dollars were laid one against another, in a straight line, they would cover a distance of 1424 miles.

Against Trading Stamps

The Trades League of this city has entered upon a crusade against the giving of trading stamps to customers. This is in line with a general movement in the country toward the abolition of what has come to be regarded as a pernicious and demoralizing business practice. The league decided to ask an expression of opinion from all its members regarding the matter, and at the next monthly meeting it is understood that definite plans will be adopted for the elimination of the trading-stamp system. The circular issued to members of the league is largely made up of the argument of ex-Governor Griggs, of New Jersey, as counsel for the Merchants' Association of New York, before a committee of the Legislature of the Empire State. "The business is of recent invention and development," Mr. Griggs stated. "Its development is not yet finished, but is still going on. That the business has proved to be demoralizing to the community has abundantly appeared. It is not necessary to show anything of the practical injury that these trading-stamp corporations have exercised over retail merchants, compelling them practically to assume the practice of giving out trading stamps in order to protect themselves against injury and loss of trade by reason of the fact that inducements of that kind were afforded by competitors. The harmful effects of the trading-stamp business are universally recognized by merchants as a deadly parasite on trade, whose abolition is earnestly sought, not only by those who have not adopted the system, but by those who have been deluded into believing it a benefit and have made use of it." A list of retail merchants' associations which have decided to discontinue their use on and after

May 19th, was given, as follows: Pennsylvania State Retail Merchants' Association, the Retail Merchants' Associations of Wilkesbarre, Tamaqua, Milvale, Philadelphia, Lancaster, Chester, Scranton, Erie, Allentown, Pittsburg, Harrisburg, Hanover, of this State; New York, Elmira, Niagara Falls, New York; New Jersey Retail Merchants' Association, and those of Asbury Park, Baltimore, New Orleans, Boston, San Francisco and Omaha.

The smoker which the Philadelphia Jewelers' Club had contemplated holding during the month of April, was indefinitely postponed on account of the operations incident to the enlargement of the club's quarters. In order to keep pace with its growing membership and with the broadening scope of its social activities, the acquisition of more room became imperative. As was duly reported in these columns, the annexation of the adjoining premises, at 1227 Chestnut Street, was decided upon some months ago, and it is the work of consolidating these two buildings that has temporarily interfered with the social round. The cause, however, is so indicative of material progress as to compensate for the unavoidable postponement, and warrant the expectation that future functions held under the club's auspices will assume still wider scope and additional eclat.

The Philadelphia Commercial Museum has sent to foreign merchants and manufacturers letters of invitation to visit the Quaker City en route for the St. Louis Exposition. The letters of invitation explain the advantages of a short sojourn here, and dwell upon the many unique attractions of Philadelphia for visitors to our shores. Those addressed number 15,000 and include a number of jewelers.

M. Sickles & Sons have purchased the business of Russell, Murray & Co., manufacturing jewelers and diamond setters, 706 Chestnut Street, and have moved the plant to the third and fourth floors of the new extension to their building. This will add considerably to the manufacturing facilities of the firm, and their products will henceforth include a line of fine diamond mountings, etc.

L. V. Garron recently resigned his position as salesman and window-dresser in the Wanamaker jewelry store and has joined the force of the Bailey, Banks & Biddle Co. in its palatial new store. Prior to entering the services of the Wanamaker store he had served with J. E. Caldwell & Co. for a period of eighteen years.

Fred. B. Hurlburt, of H. O. Hurlburt & Sons, recently returned home after an extended sea trip. Accompanied by his wife, he sailed for Europe on February 27th, on the *Princess Irene*, of the North German-Lloyd line, and visited the chief points of interest on the Mediterranean coast. Rome, Naples, Florence, Milan, Lucerne and Paris were among the cities visited en route. The return trip was made on the magnificent *Kaiser William II*, also of the North German-Lloyd line. Both Mr. and Mrs. Hurlburt were much pleased with their trip, which they found both interesting and healthful.

It is announced that Gabriel H. Mayer, of Geo. Mayer & Co., will be married next month. The lady is Miss Laura Hoffman, of New York City. Mr. Mayer's host of friends are already offering congratulations.

Geo. W. Scherr, formerly of the wholesale jewelry firm of L. A. Scherr & Co., of this city, died recently at the Rush Hospital. The fatal malady was consumption, from which he had suffered for some years.

Wm. N. Brunner, 711 Sansom Street, repairer for the trade, has issued a neat little folder telling

of his facilities for the repair of watches, clocks, jewelry and silverware. The text of his talk is the following apt quotation from Emerson: "Do some one thing better than anyone else, and though you build your house in the depths of the forest, the world will blaze a path to your door."

Dallas and the Lone Star State

H. W. Bounds, of this city, has increased his working forces by employing H. Wilson as watch-maker.

A. S. Fonville, of Wichita Falls, was a recent caller on the jobbing trade.

P. F. Reichow, who has been located at Mount Pleasant, Texas, for a number of years, was in the city recently purchasing a safe and stock preparatory to moving to Lexington, Okla. Ter., where he has a bright future before him.

E. Burroughs, of Wagoner, Ind. Ter., but recently of Italy, Texas, was a welcome visitor in this city last month. He reports that his home is everything that could be expected, and that future prospects in the territory are good.

R. P. Hill has gone to Sweetwater to hold an auction sale for J. H. Cooper, of that place.

W. M. Martin, formerly with W. Y. Penn, of Georgetown, has accepted a position with T. B. Bond, of Hillsboro.

J. O. Baker, of Collinsville, was in the market recently for a small bill of goods for his summer trade.

Largent Bros., of McKinner, were unfortunate in being located in the block that was recently burned, and their loss included fixtures, jewelry and books. However, they were partly covered by insurance.

J. M. Grogan, of Arlington, who recently recovered from a two-weeks' spell of illness, visited Dallas last month.

J. W. Estes, who recently purchased the stock of E. R. Smith & Bro., of Smithville, has removed his stock and fixtures to Coalgate, Ind. Ter., where he has opened up a nice store.

H. Wilson, formerly with W. A. Peck, of Denison, has resigned his position.

R. R. Russell, of Farmersville, was in the city recently making purchases.

F. E. Chase, of the traveling staff of Morgan & Hawley, has gone on his Southern trip.

J. B. Richards is now with W. A. Peck, of Denison.

Joe U. Ruetsch has moved from 324 Main Street to the Cockrell Building, 303 Main Street. The last-named premises have been completely remodeled to suit the needs of a jewelry store. A new glass front has been installed and many other attractive features added. Jeweler Ruetsch has rented portion of his new store to a typewriter company.

Robt. A. Terrell, optician for A. A. Everts, of this city, was recently united in marriage to Miss Marguerite Brewer, also of this city. The marriage took place April 6th, at the home of the bride, only the intimate friends of the parties being present. THE KEYSTONE joins their many friends in extending congratulations.

"I always find it enjoyable as well as profitable in reading The Keystone. Can't really see why you are not bankrupt, publishing so much for so little."—E. C. Coble, Jeweler, Mt. Airy, North Carolina.

Do You Want This Protection?

Chains stamped **R. & D.** or **R. S. Co.** are manufactured by us of 14 K. Solid Gold Tubes filled with composition metal, and are thoroughly well made. Because they are so made we are able to fully warrant them. This warrant, too, is a guarantee that IS a guarantee.

A guarantee for a gold filled chain is not unusual. It is its manufacturer's advertising stock in trade. It is useful in convincing the prospective customer, but a most vague and unsatisfactory pledge to the purchaser.

We warrant our chains to wear **TWENTY YEARS** and we make this pledge exactly as binding as any watch case guarantee. A registered **CERTIFICATE OF GUARANTEE** is supplied with every chain.

The last link of each chain is stamped with a number which corresponds with the number on the Certificate of Guarantee. If the chain does not wear as warranted this certificate entitles you to a new chain.

We make these 14 K. Gold Filled Chains in a large variety of newest and most staple patterns. Such a line, backed by so strong a guarantee, cannot but interest all chain purchasers and chain wearers.

Sold only through Jobbers.

Ask yours for an assortment.

RODENBERG-SMITH COMPANY,

(Successors to RODENBERG & DUNN and ALBRO & COMPANY),

NEW YORK OFFICE—9-11-13 Maiden Lane.

183 Eddy Street, PROVIDENCE, R. I.

Pittsburg and Vicinity

Reasons for Conservatism

The seasonable trade this spring broke a spell of quiet that to the jeweler seemed a little disconcerting. During the lenten season business had dropped off with a severity that was unusual, and while there was no lack of confidence in better times that were coming, the "better times" seemed to hang back with a most trying persistency. To those dealers who had stocked up during the rush period, and with the belief that there was no end to the prosperous and abnormal business conditions, this shut down of active trade was a shock. Some of them, and in fact most of those complaining were among the younger members of the trade, and now count the experience a valuable one for the future.

As sized up at this time by the leading dealers and manufacturers, business conditions are now assuming a normal and conservative position—one of the best kind possible to attain. There is business, and a good, healthful kind of business. It has changed from the rush and speculative kind to the thoughtful and careful class of trade. It has increased the safety of credits many times, and correspondingly has increased confidence in the minds of the manufacturer, jobber, wholesaler and dealer. Easter holidays showed this to be the case here. There was a strong movement of Easter novelties, and of a high order. The stocks on hand were all well selected and the displays of the various stores were among the most attractive yet seen. This trade has retained much of its active life since, and to-day finds most of the dealers looking satisfied, with perhaps smaller profits and lower prices, but with a capacity for earning a fair return for their labor and investment.

Unusually High Rents

The average dealer, as well as the average business man, looks upon the jewelry trade of Pittsburg as a good barometer of general financial conditions. It certainly seems to be the case at present. There is the same conservatism shown in financial circles, but reasonable in its demands and with elements of strength that show how well have the lessons of inflation and abnormal boom in all lines of business been learned by the business people as a whole. There is an open purse for all legitimate trade, however, and where prices are not elevated beyond reason, there is a buyer for all shops. Rents have taken a serious turn in many sections of the city. They have gone so high that at this season there are more vacant stores than at any time in ten years. It is one of those situations that comes after flush living and unnatural rates and prices in all commercial trade. Next season, after a long period of idleness of property, the owners will see the unwisdom of such demands and come down, and a change will take place that will be better for them as well as the city.

Enterprising Newcomers

There have been very few entries into the jewelry trade this spring by newcomers. The enterprise of Charles O'Brien & Company, which was mentioned last month, is shortly to be ready. This company has secured a handsome store in Wood Street, and the alterations now about completed on the building will make the store one of the most modern and handsome, both in exterior and interior, in the city, while the location, being along the new development of business growth in Pittsburg, makes the venture the more interesting. Another new store is that of A. Markovits, who secured a small but

well-appointed room at Ross Street and Fifth Avenue. The location seems a bit out of the ordinary for jewelry trade, but in a section of the foreign populace that has never been backward in supplying business for the jeweler. The front of this store is black, and the interior of the display window is black. It is so much so that it attracts attention, while its effectiveness in bringing out the jewels and stock shown on black velvet is remarkable.

Heeren Brothers & Company report their factory working steady, and with plenty of business ahead. The trade in the big store has kept up normally and satisfactorily. Otto T. Heeren has gone to Europe for his annual trade buying for next fall and winter, and will be away for some time.

The Diamond Theft

Nettie Steel, the young woman stenographer, who went some time ago to the diamond dealer, Sam. F. Sipe's place of business in Fifth Avenue, and in an attempt to secure a diamond valued at \$400, swallowed it and was subsequently arrested and held for trial in court on the charge of larceny, was up for trial last month, her case attracting much attention. The details of the case were mentioned in THE KEYSTONE at the time, the young woman having borne, prior to this occasion, an unblemished reputation and was a member of a respectable family. In the trial Mr. Sipe, on the witness stand, testified that after the girl's arrest she had been promised leniency by detectives if she confessed to stealing the stone. This was held by the court to be sufficient to shut out all further evidence secured from her after the promise was made, and so disconcerted the prosecution that they could do little else in the case. The defense boldly put in the statement that the diamond that the young woman swallowed was her own, which she put in her mouth in the excitement and swallowed for the same reason. As what she said in her confession was ruled out by the court, this statement could not well be controverted. When the jury took the case and remained out all night, they disagreed, and a new trial will have to be given the young woman. The case is one of the strangest in all its incidents that has been witnessed in this city, and particularly by jewelers. From present indications the case is likely to be dropped, though no decision has yet been reached.

An Erring Clerk

Another case which has attracted attention of the trade locally has been that of Harry Molby, a clerk in the employ of Heeren Brothers & Company, who was arrested on March 20, after some work by detectives, and several hundred dollars' worth of diamonds, rings, stones of various kinds, and watches, pins and other valuables were recovered which the firm claimed and which Molby took from his employers and secreted in his boarding house during the prior two or three months. The young man had been employed in the store for several months, and came from an excellent family in Allegheny. He is said to have had a clean record and never before was in any sort of trouble. The missing of several valuable stones and jewelry by the firm was reported some time ago, and a close watch was being kept by the heads of the house on all employees. A private detective was finally employed, resulting in the arrest of Molby. When the young man was arrested he confessed his offense and was sent to jail. The stolen property was recovered and W. T. Hoffman, of Heeren Brothers & Company, stated that it was not probable that anything further

would be done to prosecute him. This is due to the fact that the clerk had made a clean breast of the offense, and it was felt that the prospects of his reform without punishment other than what he has suffered would be greater than if the case was pushed in the courts. Owing to the prominence of the firm and the high standing of the young man involved, the case caused something of a mild sensation in jewelry circles as well as in general public affairs.

Diamond-Selling Scheme

With the advance in the season and advertising of the retail trade a novelty has been sprung in Pittsburg at least by M. J. Smit, the veteran dealer, of Fifth Avenue, who has made a specialty of selling diamonds on the instalment plan. The effort he is making consists of the application of the savings bank scheme for all customers desiring these brilliants. He gives each instalment customer a small savings bank, the key to which is held by the firm. This is taken home with the purchase, and it is argued that the presence of the bank is a constant reminder and aid to the holder of the diamond to deposit weekly sums toward the payment of the diamond, which he carries when a month or stated period has elapsed. The idea is attracting not a little attention and is said to have been fruitful of much new business of this class.

Spring house cleaning is noticed among many of the dealers. The stores are being renovated in some instances, but on the other hand it is also a conspicuous fact that aside from a general cleaning and brightening of the store interiors and the touching up with paint, etc., that alterations are few. There is not the change in locations that marked spring a year ago, but in some instances there has been a curtailment of space on the part of dealers to bring down the fixed charges.

Another Big Building

The completion of the Washington National Bank office building, at Fifth Avenue and Washington Streets, is understood to be another marked advance by the jewelry trade out Fifth Avenue to the east. The new building is several squares over the famous "Hump" and so far removed from what was once considered the only business district of the city that, to old residents, the transformation that is taking business out that far is a source of wonder. It is learned, however, upon good authority that not a few wholesale jewelers are preparing to establish themselves in this new building in a few weeks. It would seem as if this is but another of the many instances of high rents forcing smaller trades from the congested districts.

Vilsack and Gillespie Brothers report trade as moving satisfactorily with the advance in the season. Stock buying for the fall is under way, but generally confined to a smaller scope and a most severe selection in all lines. Not a few of the dealers are preparing to take their annual trip to Europe earlier this season.

Finding Things that Drop from Bench

ED. KEYSTONE:—Some watch repairers may never drop any material from their benches, but I sometimes do. Striking matches, using searchlights, etc., are not always satisfactory methods of finding. When I drop a small screw or any piece of watch while repairing I take a broom, sweep from under the bench out into a well-lighted place, pick up my lost piece and proceed.

Yours truly,

Rural Hall, N. C.

J. W. WOLFF.



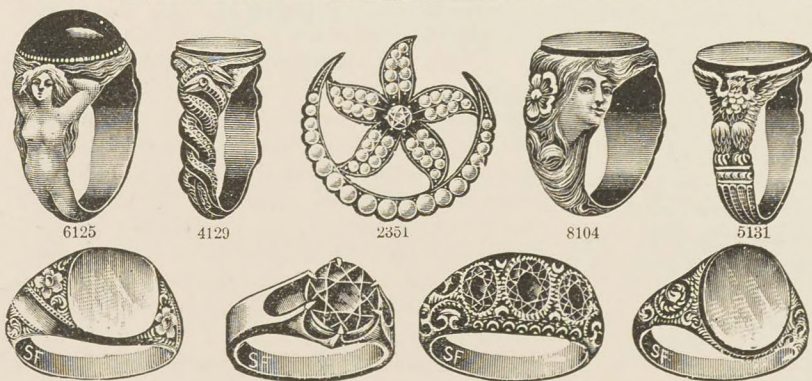
REMEMBER

that our prices are as low as any conservative wholesale dealer could ask to have them, when the quality of our stock is taken into consideration, 1-8, 1-10, 1-15 seamless gold filled.

Our woven wire fobs are 1-15, which is more than 150 per cent. better than the 1-40 ones floating on the market. Our elegant new fall styles, embracing all novelties in chains, are ready for jobbers' inspection.

It has been reported that a house, calling itself The Retailers' Co-Operative Supply Co. have stated that they can sell our chains at our prices. We have never had any dealings with above house, and are unable to find who they are. Our goods are sold to jobbers only, and at one price.

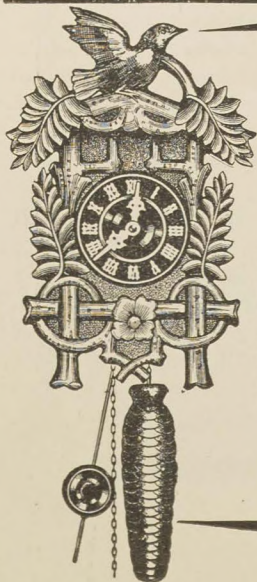
C. A. MARSH & CO., ATTLEBORO, MASS.



5131 weighs 5 dwts. 10 K. at 80c. per dwt. 5092 weighs 5 dwts. 10 K. at 75c. per dwt.
 5104 " 8 " Hand chased and rose 4045 " 4 " Hand chased, polished or
 4129 " 4 " finished. Stones or seal 3024 " 3 " roman finished. Stone rings
 6125 " 6 " tops. 4080 " 4 " are set with genuine doublets.

2351. Set with 59 real pearls and diamond center. \$7.50 in 10 K. \$8.50 in 14 K.
 We make hundreds of designs in ladies' and gents' rings, pendants, etc., in 10 and 14 K., at popular prices. We will be pleased to send selection packages to responsible dealers.

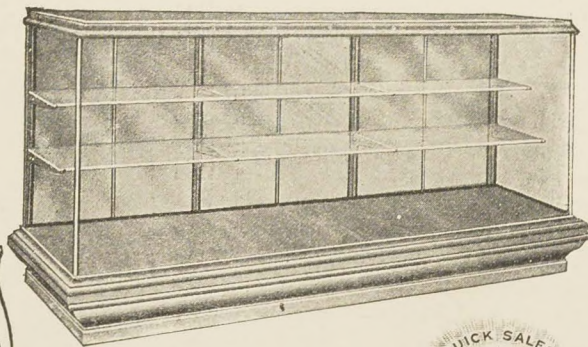
S. FRACKMAN, 51 Maiden Lane, NEW YORK.



75^c. is not the price to you,
 but the price at which this
 clock can be profitably
 retailed.

We've had a pretty hard time to keep up with the orders for these new Den Clocks. Reason enough. They've made good, and over all the land dealers are stirring things up by selling these handsome little clocks for 75c. Look at the illustration again—think of a windowfull of these clocks with a 75c. price card. Wouldn't that make a lot of people step into your store pretty lively? Send for the Den Clock Folder if you want details.

American Cuckoo Clock Co.
Philadelphia.



If you are like the rest of us, you have made up your mind that this spring's business is going to be the best season in your experience. It is for merchants who get this spirit that

"Quick Sales" SHOW CASES.

were intended.

They are a fit setting for the daintiest and finest line of spring goods you have ever handled.

Designed and made by men who are familiar with show case making from A to Z, and who have made good show cases for over 30 years. Honest cabinet-making and high-grade materials place "QUICK SALES" Show Cases above suspicion of cheapness.

We will send prices, descriptions, and handsome circular in colors upon request to our Detroit office.

DETROIT SHOW CASE CO.,

482-490 Fort St., W., DETROIT, MICH., U.S.A.

Canadian Branch, WINDSOR, ONT.
 Chicago Salesrooms, 199 Fifth Avenue.

JOHN PETZ, Pres. & Supt.
 HERBERT MALOTT, Secy. & Treas.

Cincinnati Letter

Bad Weather Hurt Business

The extremely untoward weather which has prevailed here ever since the middle of last November, has had a disastrous effect on spring business in general until the latter part of April. The cold streak which struck Ohio Valley States has held on without breaks of any moment. It has remained thirty days longer than the normal condition of past years, with the result that all spring business has stagnated. People refused to prepare for spring or summer with ice and frost abroad each night. The general depression, naturally, has had its effect upon the jewelry trade, and while some of the firms report a fair business, most of them are complaining of dullness. There is every indication, however, that with the opening of the warm weather and of the gates to the St. Louis Fair, the city will witness the arrival of many people westward bound and business will revive. The manufacturers continue to be busy turning out emblem work for the Elks' national reunion and other big events of the summer.

Defaulting Banker Caught

L. C. Harding, former banker, wanted here for having passed a worthless check for \$500 on the Duhme Jewelry Company, is in custody of the local police after many adventures on the part of Detective Callahan, who went to Tampa, Fla., to bring Harding to Ohio. Harding's friends made a hard fight to keep the prisoner out of Ohio. They brought proceedings in *habeas corpus*, but the detective and Post Office Inspector Bannerman concealed Harding in a mail car so that no legal service could be obtained on them in Florida. After the train had reached Atlanta, and the wires got to working, Harding's wife caused the arrest of the detective for kidnapping. Other efforts were also made to keep the prisoner in Georgia, such as the filing of criminal warrants upon which it was hoped the Federal government would be frustrated. These efforts were all fruitless and, after various delays, Harding, alias Blazer, was landed within the jurisdiction of the Ohio courts. Harding organized a bank which lived but a short time. At the time he knew the bank was about to close its doors, he wrote out checks which he had cashed here, in Louisville and at other places. The Louisville police have a warrant for him, and the Post Office Department is also said to have taken a look into his method of using the mails in operating the defunct bank.

Bids were recently opened in Judge Smith's court for the purchase of the Duhme Brothers' jewelry store at 138 East Fourth Street, which has been in the hands of a receiver. No award has yet been made.

The entire stock of jewelry of Frank Flint, who for years was engaged in business on Vine Street, and later at 516 Race Street, has finally been sold out at auction. The sale lasted more than a month. Mr. Flint will likely re-embark in the business again at a future date.

A. G. Schwab, of the firm of A. G. Schwab & Bro., and Eli Gutmann, of L. Gutmann & Sons, were in New York City last month.

Joseph Noterman, of Jos. Noterman & Co., attended the Scottish Rite Conclave at Louisville, Ky., last month.

The jewelry firm of Plaut & Company, at 427 Elm Street, went into the hands of a receiver last month on the petition of Maurice M. Plaut, who sued for a dissolution of the partnership. The

other member of the firm is Henry J. Cantrowitz. The receivership was the outcome of a disagreement between the partners. The Superior Court placed Attorney Harry Friedman in charge to wind up the affairs. Assets were estimated at about \$20,000; liabilities being considerably less.

James P. Jones, proprietor of the Paris Jewelry Company, of Paris, Tenn., accompanied by his better half was recently among the wholesalers and incidentally took in some of the sights.

Information has been received of the death at Tiffin, Ohio, of Lewis Sewald, the oldest jeweler in that section of the State, after an illness of several months.

Mr. Scheff, of Scheff Brothers, jewelers, at Wheeling, W. Va., was in the city to replenish his summer stock.

The engagement of Eli Gutmann and Mrs. Blanche Untermeyer, of San Francisco, has been announced. The wedding will not occur until fall. Mr. Gutmann is a member of the well-known wholesale firm of L. Gutmann & Sons.

The Gem Jewelry Company, at 32 Arcade, was robbed of \$500 worth of jewelry a short time ago by a transom thief.

C. J. F. Bene, who retired from the wholesale business a year ago, and was succeeded by the reorganized firm of Lindenberg, Strauss & Co., sailed for Europe a short time ago to take an extended cruise of three months.

E. & J. Swigart, of 15 East Fifth Street, are fixing up their jobbing quarters and installing new and modern cabinets.

The pen factory of O. E. Weidlich, in the Nevada Building, was recently visited by fire and narrowly escaped complete destruction. The firm's loss was slight.

A large number of choice pieces of Rookwood pottery, which will constitute the exhibit at the St. Louis World's Fair, were recently exhibited at the Fourth Street stores of Loring, Andrews & Co.

Constable Ehman seized a lot of jewelry at Abraham Rubinovz's store at 15 East Pearl Street, on complaint of James Flomerfelt, a manufacturer of New York City. Flomerfelt charged that Rubinovz, while formerly employed by him as a salesman, converted goods of the firm to his own use and then started in business for himself.

Burglars who had been detected in the building of the Homan Silver Plate Company a few weeks ago had a thrilling experience in escaping arrest. Two men had been seen on the first floor by the night watchman. They fled to the elevator platform and attempted to run it into the cellar. The power was off, and the truck with its two passengers suddenly dropped to the bottom of the shaft. Neither seemed to be badly injured and made their escape. About sixty pounds of metal were stolen.

The National Metal Trades' Association, with national headquarters here, some weeks ago met in Philadelphia and reaffirmed its principles not to arbitrate any question with men on strike. H. N. Covell, of Brooklyn, was elected president; Robert Wuest, Cincinnati, secretary; F. A. Geier, Cincinnati, treasurer.

The store of Benzel Brothers, at Hamilton, Ohio, was twice visited by burglars within the past month. The first robbery netted the thieves about \$800 worth of watches and jewelry and is supposed to have been done by crooks making their headquarters in this city. Two weeks later, a colored man was caught in the act of trying to sneak a tray of diamond rings from the show case. In his haste he spilled most of the plunder on the floor, but was caught with a gold chain in his possession, which will be sufficient to convict him.

After an extended and highly satisfactory trip through Havana and various winter resorts in Florida, Edward Hirsch, the financial man for Lindenberg, Strauss & Company, has reached home much improved in general health.

The first ball team to be organized this season among employees of jewelers' establishments was organized among the force of the Gustave Fox Co., the middle of April. A social was held at Stanley Hall, on Saturday April 16th, for the benefit of the new club. An enjoyable event was recorded and a neat sum is said to have been raised for the benefit of the club.

Thomas Lovell, the retail jeweler at 428 Race Street, was seriously ill during the past month; during which time the business was in charge of William Staggeman, a veteran employee.

Charles Hoffman, manager of the Arcade jewelry store, at Springfield, Ohio, was recently here to buy new fixtures for an annex to the company's store.

Two young fellows relieved Jeweler George S. Rekart, of 1533 Vine Street, of a tray of rings valued at \$150, taking advantage of his absence to work their game upon a seventeen-year old clerk, who fired a shot at the fugitives.

Frank Herschede returned some weeks ago from a several weeks' trip to the West Indies. He is superintending the completion of a hall clock exhibit which will be made by the Herschede Hall Clock Company at St. Louis World's Fair.

The Commercial Club of this city accompanied Secretary of War Wm. H. Taft to St. Louis on a special train in time for the formal opening of the big fair, at which the Secretary represented President Roosevelt. The head of the War Department spent a few days prior to the trip among his old home friends.

William Jackson has sold out his jewelry store at Seymour, Ind., and is again back with the Arcade Jewelry Co., with which firm he was connected before he went to Indiana.

A local firm has placed a large clock in the steeple of the Holy Trinity Church on West Fifth Street. The timepiece is a mammoth affair and was secured in Boston.

Max J. Lasar, king of diamond smugglers, who was under constant surveillance of customs officers of several countries during the last ten years, has died at his home in Roumania of a general decline, which was brought on him while he was serving a term of four years in New York, after having tried to smuggle a box of loose diamonds across from Montreal. A half dozen years ago Lasar landed in Cincinnati with a lot of smuggled stones and tried to dispose of them at low prices. The trail got so hot he disappeared and was next heard of in Europe, where he made heavy purchases of uncut stones. It was the espionage which was started at that time which led to his being trailed into Canada, and apprehended after he had induced a young bride, who was crossing to the United States, to carry over for him a candy box. She supposed it was some wedding present. When the inspectors opened it and exposed a quart of diamonds the young woman nearly had a spasm.

The following were among the visitors to the trade during the past month: O. Sherwood, Falmouth, Ky.; F. H. Snyder, Lexington, Ky.; James P. Jones and wife, Paris, Tenn.; Mr. Scheff, of Scheff Brothers, Wheeling, W. Va.; C. Cole, Ceredo, W. Va.; A. C. Davis, Coolville, Ohio; C. K. Hamilton, Lebanon, Ohio; Charles Hoffman, Springfield, Ohio; J. H. Drake, Lebanon, Ohio; and Phil Horr, Aurora, Ind.

St. Louis Letter

State of Business and Prospects Good

Business the early part of the month was a little quiet, but is again picking up, and we believe when the footings are made up they will show that April this year is ahead of the same month last year. Trade is doing its best to be good, notwithstanding the backwardness of spring, the constant rains the first half of the month and resulting floods in a large part of our territory. At this writing the flood dangers seem to have passed over, and if the present sunshine will only stay with us for a week or ten days, trade will brighten up wonderfully. Our city presents a lively appearance; there are more people on her streets than were ever seen before, all of which is caused more or less by the near approach of the opening day of the World's Fair. By the time these lines are read in THE KEYSTONE the greatest and grandest of expositions will have opened its gates to the world. We would advise our friends, however, not to come before the month of June, as by that time the grounds and the exhibits will have received their finishing touches. Many dealers cannot afford to be away from home during the fall trade. Therefore, we expect a large number of jewelers in June, July and August. To those who have no personal acquaintances in this city who could identify them, we suggest that before leaving home they have their firms or their local banks write a letter to some business correspondent in St. Louis in regard to their credit, with the personal signature of the visitor attached, so they will have no difficulty in identifying themselves and having their drafts cashed should they run short of funds while here. During all great world's fairs there are imposters. Wholesale houses at such times are compelled to be unusually careful in cashing drafts. Therefore, it is only fair and prudent that a jeweler visiting this city without any personal acquaintance, should make such arrangements that he will have no trouble in identifying himself. We would like to suggest also that it would be a good idea to have all your mail, telegrams, etc., sent to this city in care of a certain correspondent, and to carry in your pocket written instructions in case of accident to immediately communicate with that house. Among the millions of people who will visit St. Louis this summer there will be cases of sudden sickness and some serious accidents, and we offer these suggestions, believing them worthy of consideration.

Of Great Importance to the People

Although the promoters of our World's Fair have spent very little for advertising it is an affair of great importance to the people, who are learning more of it every day. As the opening draws near their interest increases, and about every man, woman and child in the middle West, the South, the Southwest and the far West are planning to go. Speaking of the Louisiana Purchase Exposition and its importance Mr. Samuel Eisenstadt, of the Eisenstadt Manufacturing Company, said: "St. Louis is undoubtedly to have a World's Fair far surpassing anything the world has yet seen. Its present promise challenges the wildest flights of the imagination. No one can conceive what has been accomplished without seeing it. The scope of the enterprise is gigantic, its detail is bewildering, and the beauty and artistic combination of buildings, grounds and water make the place a region of enchantment. The visitor to our World's Fair will find himself in fairy land, in wonderland, and

this without reference to what his experiences in sight-seeing have heretofore been. What we St. Louis people want is that this impressive fact shall be sufficiently well known at home and abroad to bring the people out as our great show deserves."

Bank Clearings on the Increase

St. Louis is again breaking bank clearings records. For March, 1904, the city's clearings were 16 per cent. in excess of the same month in 1903. For the three months of 1904 the gain was 15 per cent. over the corresponding time last year. A little of this gain, of course, is due to the World's Fair work, but only a little. General business in St. Louis is more active and extended than it was a year ago. The city is riding high on the prosperity wave.

The Southwest Prosperous

A prominent railway man from Galveston, in a recent interview, had the following to say about present conditions in the Southwest: "The South and Southwest are wonderfully prosperous just now, as a result of the big grain crops and the short cotton crop at very high prices last year. Industrial and business conditions generally are excellent. While it is a little early to make crop prognostications, conditions promise well. Wheat is already above ground and looks well. Cotton also promises well and a tremendous acreage has been planted."

Kansas Makes Good Showing in Bank Deposits

The bank deposits in Kansas, according to a late report from the State Bank Examiner, are equivalent to \$69.89 for every man, woman and child in the State. Another good wheat crop and about everybody will be wearing diamonds out in the Sunflower State and the jewelers doing the business of their lives.

The Eisenstadt Manufacturing Company have established and put in operation a bureau of information for the use and convenience of their friends and customers who intend to visit St. Louis during the exposition season. For this purpose they have fitted up handsome quarters on the third floor of the Holland Building, and have put J. L. D. Rodgers in charge. They are prepared to make arrangements for hotel accommodations or rooms with private families and furnish information concerning the World's Fair or anything else that may be of service to their friends and customers.

John Graves, one of the pioneers in the trade in Missouri, for many years connected with the St. Louis trade, but now located at Rolla, Mo., was in town for a couple of days the early part of the month calling on his friends.

Otto Rink, of Carlyle, Ill., was among the visiting buyers in the St. Louis market last month.

H. B. Hall, of Carthage, Mo., spent a few days in St. Louis last month selecting some spring bills from our wholesale and manufacturing stocks. Mr. Hall says trade in his section is about as usual at this season of the year.

Albert E. Wuestermann, the lively and successful jeweler of Champaign, Ill., paid the St. Louis market a visit last month and was warmly welcomed by his friends in the trade here. Mr. Wuestermann is among the "sunshine" order of dealers and always looks upon the bright side of business. He reports trade good with him for a backward spring, and was of the opinion that things would brighten up as soon as the weather became more seasonable. He was delighted with our World's Fair and thought it was progressing finely for the opening day. Mr. Wuestermann promised to come back later on and take time to

do the "greatest exhibition" thoroughly, and see all about what America has been doing since the Chicago World's Fair eleven years ago.

A. J. Blackstock, of Van Buren, Ark., was a welcome trade visitor in the St. Louis market for several days last month, making liberal selections of goods for his spring trade. Mr. Blackstock says the Southwest is prosperous and that prospects are bright in his section for a good spring and summer business. Like all who visit St. Louis these days, Mr. Blackstock found his way out to the Exposition grounds and took a look at our World's Fair. He was most agreeably surprised by the immensity of the undertaking and the fine progress that was being made towards completion for the opening day. Mr. Blackstock said he would surely return later in the season and devote several weeks to seeing the Fair thoroughly.

The new and enlarged quarters of the Sidney L. & Morris Bauman Company, on the third floor of the Commercial Building, are handsome and modern in every particular and their arrangement is fine. In their new office this firm have three times their former space and every facility for the rapid and careful handling of their business. This firm is the only exclusive house in the wholesale diamond business in this market and have built up a fine trade, though they have been established only two years. They are now in splendid shape to welcome their friends who may visit the World's Fair.

P. J. Ellis, of Jonesboro, Ark., was in town for several days last month doing some spring buying and taking a look over the Exposition grounds. Like everyone else who has visited the grounds of late, Mr. Ellis speaks enthusiastically of our great Fair. He thinks it will be the greatest Exposition the world has ever seen.

Samuel & Morris Eisenstadt, of the Eisenstadt Manufacturing Company, are at their posts after a fortnight's sojourn at Eureka Springs, Ark. They enjoyed their delightful outing, and say that they feel much invigorated from their short stay at this charming resort.

Carl Shibley, of Van Buren, Ark., was among the welcome visiting buyers in this market the middle week of April.

Jeweler E. K. Kane, of Pinckneyville, Ill., was a visiting buyer in the St. Louis market recently.

Fred H. Smith, manager of the Geneva Optical Company, Chicago, spent a few days at their St. Louis branch the early part of last month looking over the firm's increasing business at this point.

Miss Daisy Bauman, second daughter of Meyer Bauman, of the L. Bauman Jewelry Company, was married to S. P. Fisher, a prominent and successful young business man of Cleveland, Ohio, on the evening of April 12th, at the Columbian Club in this city. The wedding was a brilliant social affair largely attended by the friends of the bride and groom. Mr. and Mrs. Fisher will make their future home in Cleveland.

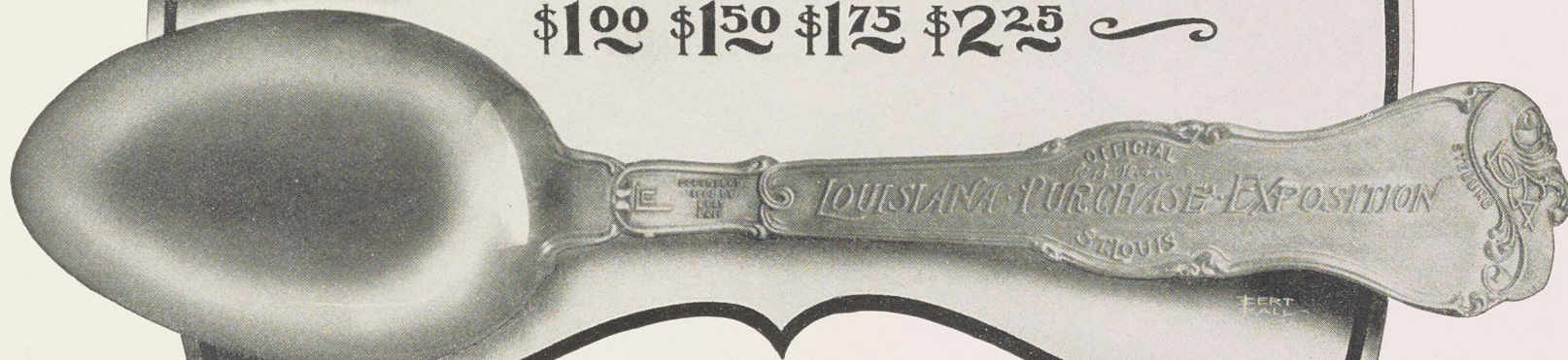
Allen V. Cockrell, representative of the Exposition at Washington, D. C., writes in regard to the issue of Louisiana purchase commemorative postage stamps: "The first issue will consist of 90,000,000 ones, 225,000,000 twos, 7,500,000 threes, 9,500,000 fives, and 6,500,000 tens. The issue will be ready for distribution April 21, and will be sent out at that time to postmasters for sale to the public from April 30th to December 1st. They will not be sold before or after this period."

"The Keystone is all I desire; it fills every want."—J. H. Cartwright, Dodgeville, Wisconsin.

WORLD'S FAIR OFFICIAL SPOON



FOUR SIZES & WEIGHTS
\$1.00 \$1.50 \$1.75 \$2.25



The front of the handle represents
A CENTURY OF PROGRESS
—of the—

LOUISIANA PURCHASE TERRITORY

In Panorama, Viz: The Setting Sun; The Buffalo and the Indian; The Lewis and Clark Expedition; The Prospectors; The Settlers in Prairie Schooners and the Modern Locomotive.

In the Bowl is shown the Cabildo in which was signed the Treaty ceding the Louisiana Territory by France to the United States.

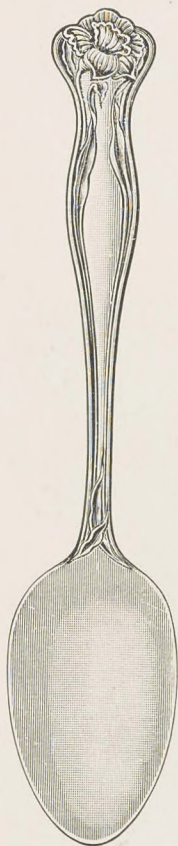
The opposite side bears the official signature of W. B. Stevens, Secretary of the Louisiana Purchase Exposition, without which no spoon is official.



We have secured the contract from the Louisiana Purchase Exposition Company for the manufacture and sale of this spoon, which will be sold to the public by the RETAIL JEWELRY TRADE only. The figures quoted above are the prices at retail. A suitable discount will be allowed to the dealer, which, together with further details, will be disclosed for the asking. The design of this spoon is not local, but historical, and will therefore sell in every section of the world. The spoon itself is pronounced by everyone to be the most finely finished and artistic of any ever gotten out for this purpose.

EISENSTADT MFG. CO., ST. LOUIS.

The Watch House of Philadelphia



MYSTIC COFFEE SPOON. Full Size.

We are Agents for

★ **ROGERS & BRO. A-1. FLATWARE.**

Send for discounts.

A complete line of Elgin, Waltham and Hamilton Movements, and the leading makes of Gold, Gold Filled and Silver Cases.

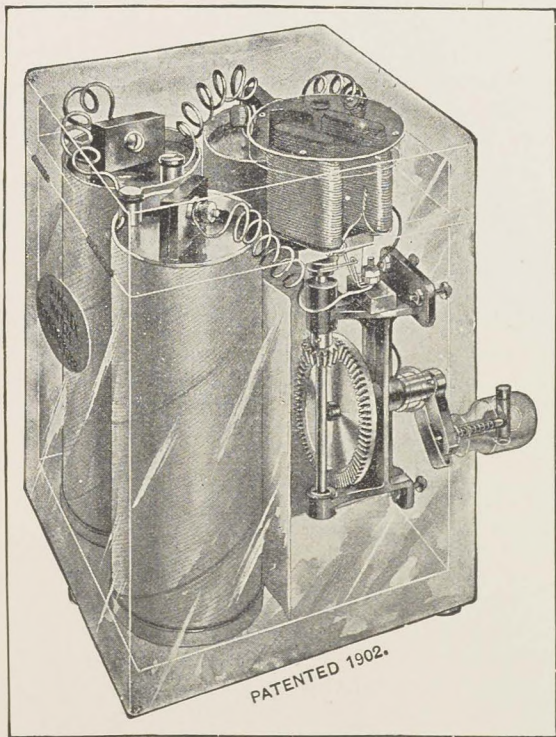
Try us for scarce goods.

H. O. HURLBURT & SONS,

14 South Tenth Street, Philadelphia, Pa.

OLDEST WATCH HOUSE IN AMERICA.

The Simplex Watch Demagnetizer



requires no outside current. This obviates the difficulty experienced by many watchmakers who have found that their demagnetizer requires the opposite current to that which they are able to secure and that they are obliged to use a transformer. With the Simplex all you have to do is to press the spring, turn the crank and gradually move the watch away and the work is done.

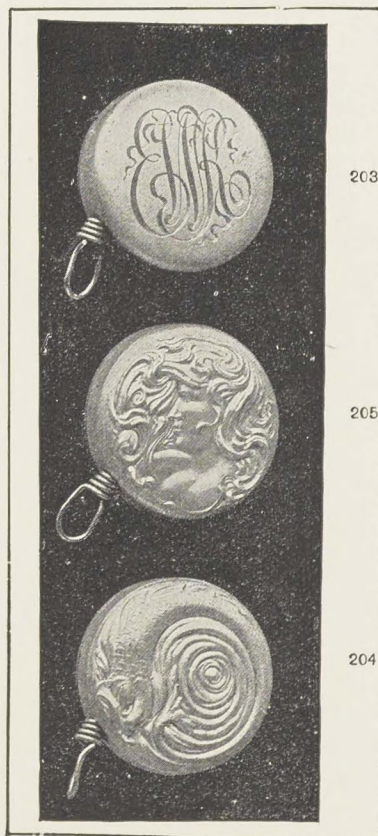
THE SIMPLEX DEMAGNETIZER has an automatic switch which cannot remain closed through neglect, making it absolutely impossible for it to "burn out" your machine, an advantage over all other demagnetizers. It is portable, also. You can carry it with you to any part of your shop, or town, or county. It is always ready for use at a moment's notice, anywhere. It weighs only 9 pounds, and is enclosed in a substantial piano-finished quartered oak case with nickel-plated trimmings. It measures 6 by 6 by 8 inches.

THE SIMPLEX DEMAGNETIZER is actuated by a three cell dry battery which will last for a year or more and can be renewed at any time for 45 cents. The gears are of brass, cut from the solid, and all pinions are of steel, accurately fitted.

And the price cannot fail to fit your pocketbook. In fact the additional profit that you can make on demagnetizing twenty watches will more than pay the ten dollars which we charge you for **THE SIMPLEX DEMAGNETIZER**.

THE SIMPLEX DEMAGNETIZER is guaranteed. If it is not satisfactory at any point, in efficiency, in construction, in simplicity, we will refund you your money.

Price, \$10.00, express prepaid.



New Automatic Eyeglass Holder, made in silver, roll-plate and gold.



114



163



129 a

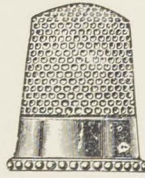
ESTABLISHED 1832
KETCHAM & McDUGALL
MANUFACTURERS
GOLD & STERLING SILVER THIMBLES
AUTOMATIC EYEGGLASS HOLDERS
37 AND 39 MAIDEN LANE, N. Y.
SEND FOR CATALOGUE "E"



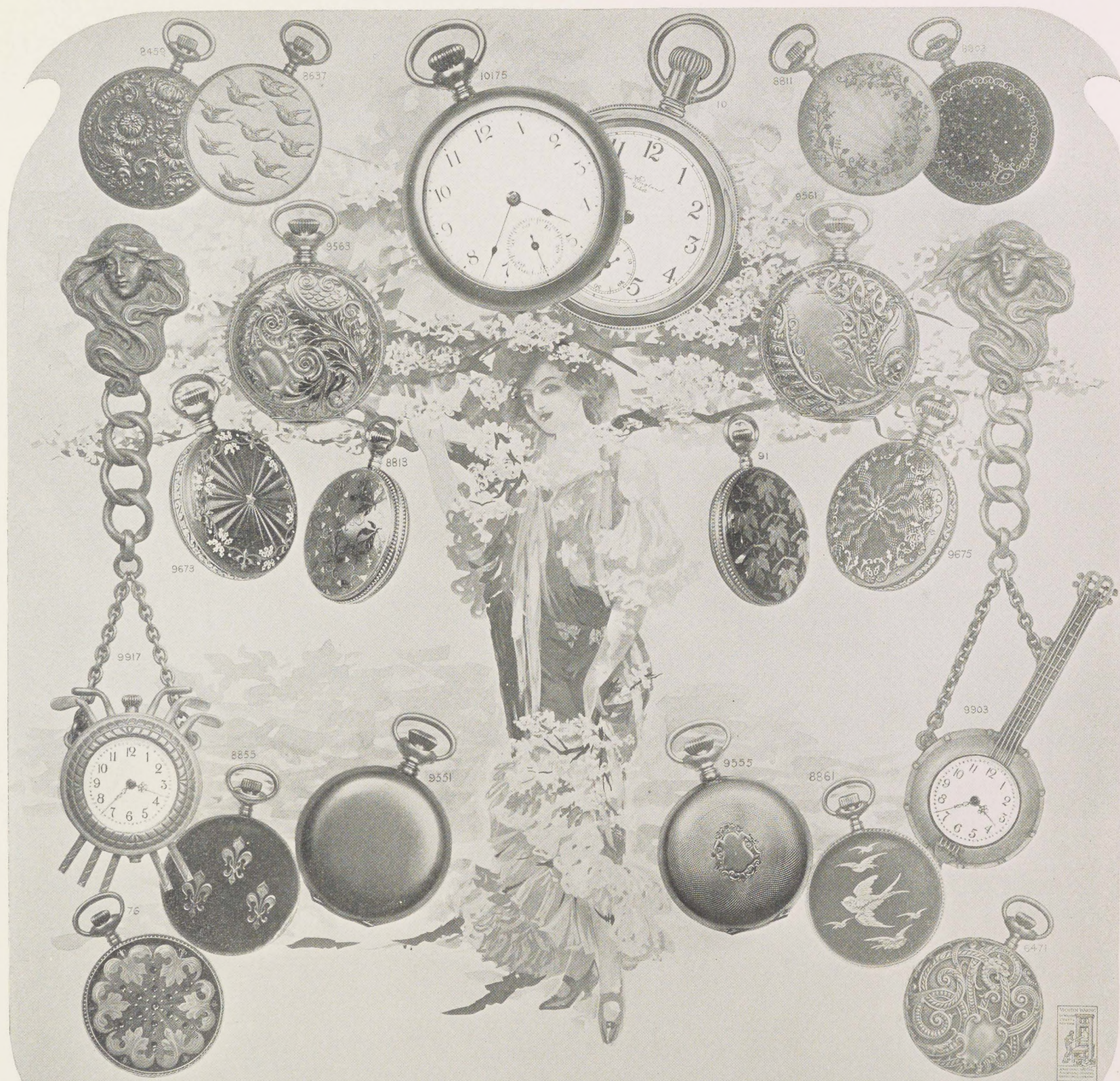
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154



Fruit blossoms, arbutus or any kinds of wild flowers make a charming May window attraction, and New England Watches scattered among the blossoms give an immediate business value to such a display. No other line of watches is so splendidly calculated to attract all sorts and conditions of men and women, boys and girls. People buy watches when they would not spend money for less useful articles of jewelry.

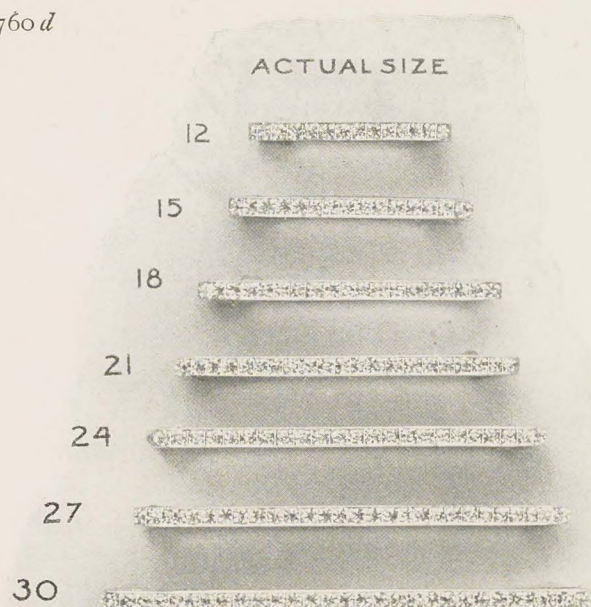
New England Watch Company, Waterbury, Conn.

37-39 Maiden Lane,
New York.

Spreckels Building,
San Francisco.

131 Wabash Avenue,
Chicago.

760d



Samples mailed on request.

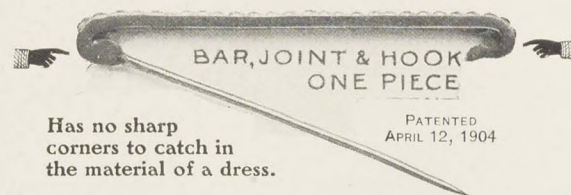
The "Breakless" Bar Pin.

14 K. GOLD ON STERLING SILVER.

Hard to distinguish from the genuine diamond platinum-set bar pin.

The life of a bar pin depends on how it is made. The joint, catch and bar of the **Breakless Bar Pin** is made of one solid piece of sterling silver and therefore guaranteed not

to break. The 14-karat gold finish on sterling silver, with stones of marvelous and lasting brilliancy, makes it next to impossible to distinguish the "Breakless" from the genuine diamond platinum-set bar pin. In popularity as an ornament for the waist, collar, cuff or belt it has no equal.



It adds much to a smart attire.

WARNING.

We hereby notify the trade in general that a patent has been granted on our "BREAKLESS BAR PIN"—No. 757,032, under date of April 12, 1904—which gives us the exclusive right to manufacture and market this invention.

We have learned that an imitation of this pin is now on the market, and we are taking measures to put a stop to this infringement, as we intend to protect our patent rights, and to this end have instructed our attorneys (Messrs. Dickerson, Brown, Raegen & Binney) to proceed against all who refuse to respect the validity of our patent. Sellers and users of pins, not our make, are equally as liable as manufacturers.

FISHEL, NESSLER & COMPANY,

SILVERSMITHS AND JEWELERS,

New York.

Office and Works,

79-85 Crosby Street.

Salesroom,

556 Broadway.

ON BACK OF EACH



BREAKLESS BAR PIN

The Latest
Addition
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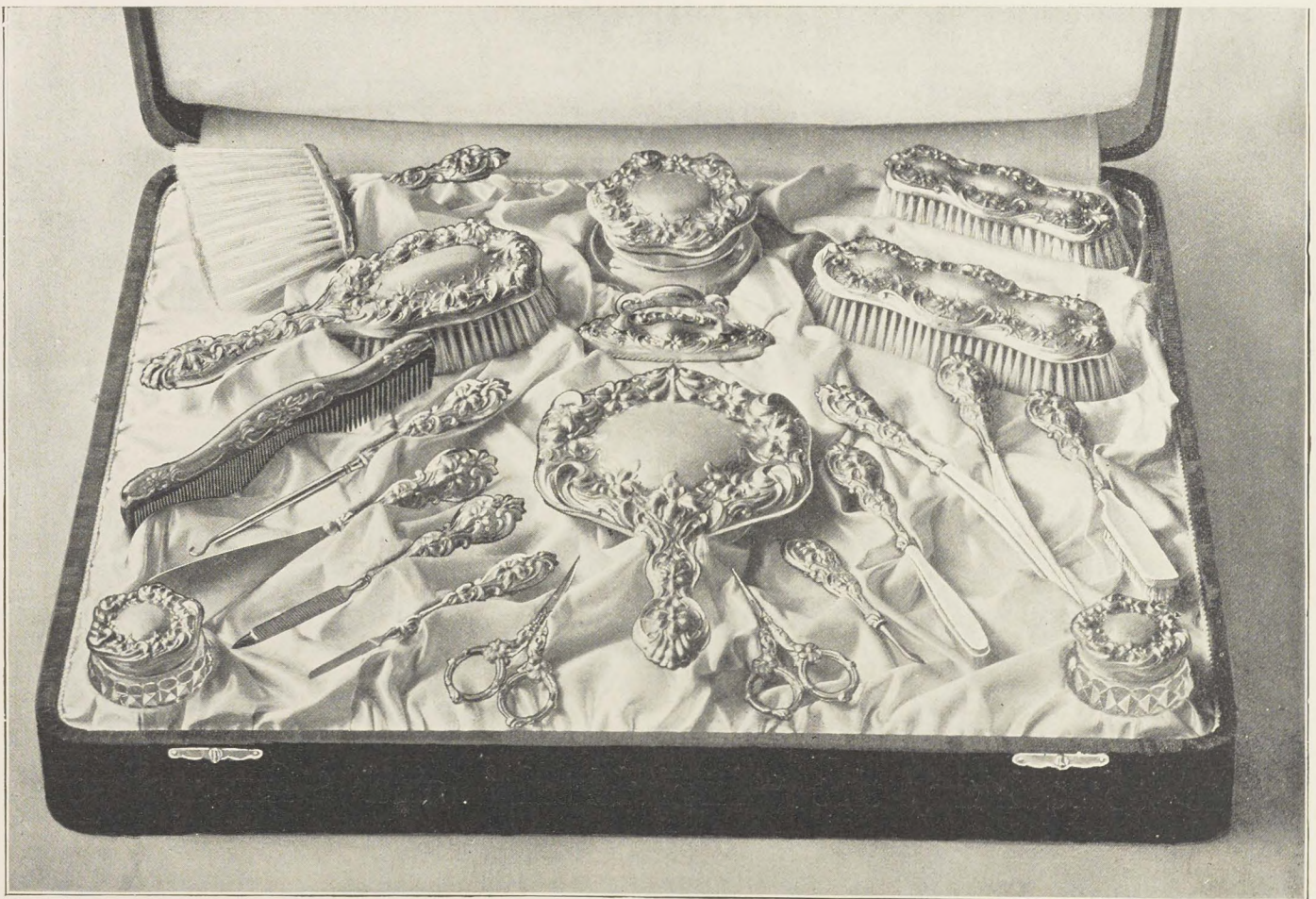
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TECHNICAL DEPARTMENT

Lessons in Horology

COURSE IN MECHANICS AS APPLIED TO CHRONOMETRY

By JULES GROSSMANN, Director of the Horological School, of Locle, Switzerland, and
HERMANN GROSSMANN, Director of the Horological and Electro-Mechanical
School, of Neuchâtel, Switzerland.

Authorized translation by JAMES ALLAN, JR., Charleston, S. C. Former pupil of the
Locle Horological School.

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(Continued. Part V.)

When we place in a watch movement the balance wheel fitted only with its spiral, there is found a position in which the elastic force of the spring exercises no influence on the balance. The latter is then in the condition of repose.

When we move the balance from this position in either direction the elastic force of the spring tends to bring it back to the point of repose; there are then produced oscillations analagous to those of the pendulum.

This oscillatory motion is very useful for measuring time and has the advantage of being suitable for employment in all portable timepieces.

62. Suppose A (Fig. 12) the point of repose of a balance wheel; if the latter be moved from that position the angle $AOB = \alpha$, and if at the point B it be released, thus allowing the elastic force of the spring to act on it, this force will impart to it a movement of rotation whose speed will increase up to the point A . Passing that point, the spiral will exert a force contrary to the direction of the motion and tending to stop it. If it were possible to produce such a movement without there being any passive resistances acting on the balance wheel, the latter would traverse a new angle, $AOB = \alpha$, then would come back to B , and so on indefinitely.

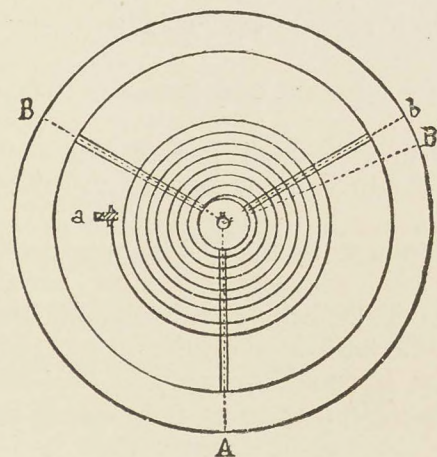


Fig. 12

These secondary resisting forces have the effect of diminishing each oscillation a small quantity, which is represented in the figure by the angle $B'O b$. Calling α' the angle $B'O A$, we have

$$B'O b = \alpha - \alpha'.$$

If, as we have done for the oscillations of the pendulum, we designate by W_m the motive work exerted by the spiral while the balance wheel traversed the angle α , W_u the resisting work proceeding from the spiral during the second part of the oscillation; therefore, while the balance wheel traverses the angle α' , and W_p the secondary resisting work of the passive forces, we would obtain the equality (46)

$$W_m = W_u + W_p,$$

or

$$W_p = W_m - W_u.$$

The work of the maintaining force should be, both for the balance and for the pendulum, equal to the secondary resisting work, if you wish to preserve the initial greatness of the amplitude of the oscillations; otherwise expressed, the work of the maintaining force should be equal to the work of the force of the spiral while the balance wheel traverses the angle $\alpha - \alpha'$.

63. We can admit that the resisting work increases with the amplitude of the oscillations, as we have shown for the pendulum, and conclude that more motive work would be necessary to traverse larger arcs than for smaller ones.

64. We use exclusively for motive force in portable timepieces the elastic force developed by a spring enclosed in the interior of a cylinder called the *barrel*. This piece, generally toothed, turns around an axis, and this action is conveyed to the balance wheel by special mechanism, which we are going to pass rapidly in review.

Wheel-Work.

Its Purpose in the Mechanism of Clocks and Watches

65. The motive force, not acting directly either on the pendulum or on the balance wheel, is first transmitted by a system of toothed wheels or train of gearings that is called in technical language the *wheel-work* or *the transmission*. This force, thus transported, is received by a mechanism which is the *escapement*; it is this last whose function is to restore to each oscillation of the pendulum or balance wheel the loss of force,

$$W_m - W_u,$$

occasioned by the secondary resisting forces.

66. When a weight is used as motive force, that weight is suspended to the extremity of a cord unwinding from a cylinder fixed concentrically on the axis of a toothed wheel. This wheel A (Fig. 13) gears in a second wheel much smaller than the first and which is called a *pinion*, on which is fixed concentrically a second

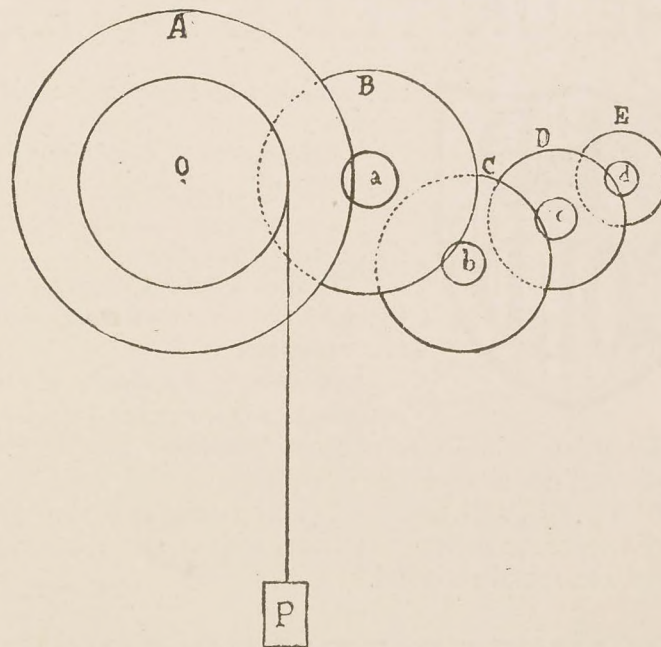


Fig. 13

toothed wheel B , which in its turn gears in the pinion b , and so on to the last pinion, on whose axis the escape wheel is fastened. The same thing takes place when the motive force is that of the spring in the barrel. In this case the barrel gears directly into the first pinion a .

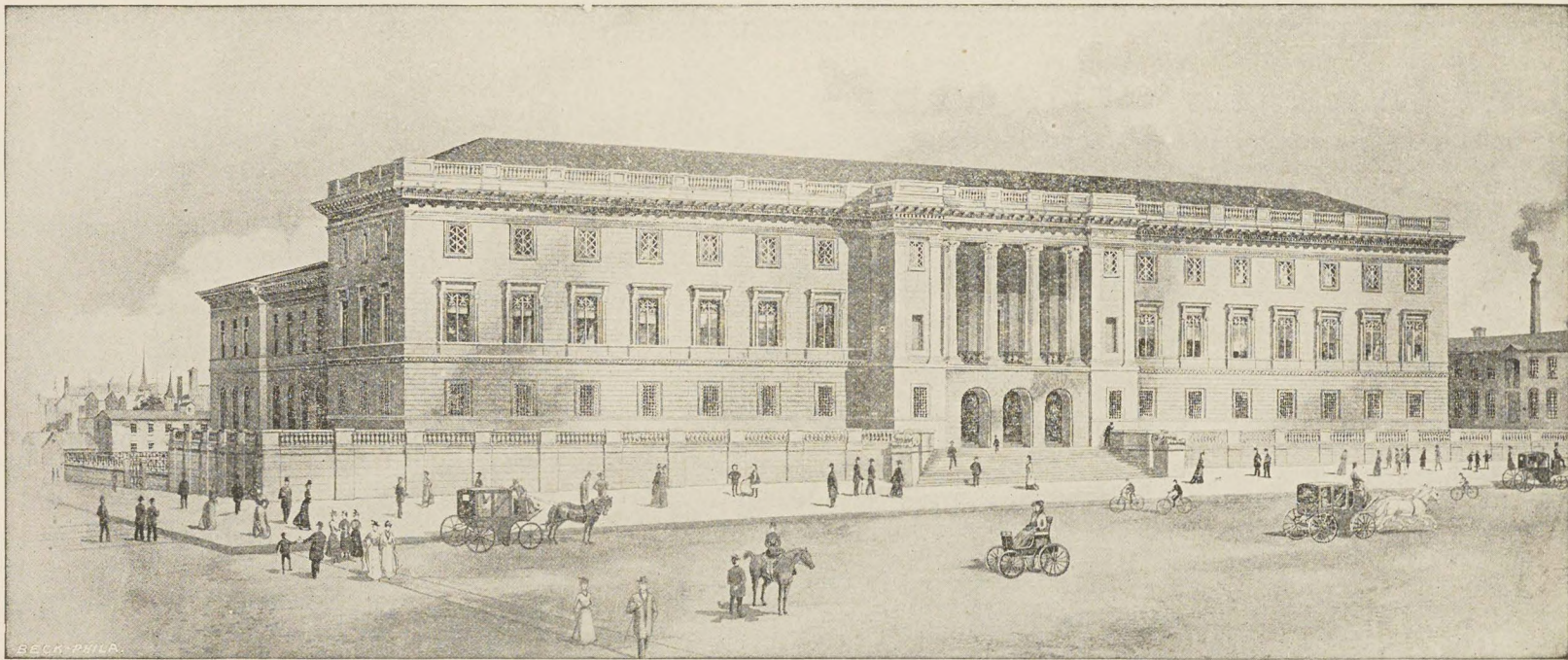
67. The different wheels of the wheel-work in watches bear the following names:

1. The barrel.
2. The center wheel * (large intermediate wheel).
3. The third wheel (small intermediate wheel).
4. The fourth wheel (seconds wheel).
5. The escape wheel (escape wheel).

The pinions carrying the four last mobiles take the same name as the wheel to which they are riveted.

68. The mechanical work of the motive force is then transmitted by the wheel-work to the escape wheel. This transmission cannot be effected, however, in a complete manner, because part of the force is absorbed by the friction of the gearings and of the

*We give here the appellations still in use in most of the horological workshops of the canton of Neuchâtel. The names of large and of small intermediate wheels are really obsolete and should be replaced by the following, which are in better relation to the positions of these two mobiles: "Center wheel" for the first and "Intermediate wheel" for the second. To avoid confusion, we conserve, however, in this edition the denominations in use in this locality. (The usual names employed in America have been made use of by the translator.)



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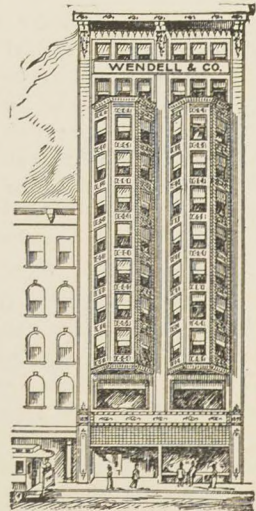
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Lessons in Horology

(Continued from page 761)

pivots, by the inertia of the moving bodies and sometimes also by the defects resident in the gearings.

69. Beside the transmission of the force, the wheel-work should fulfil another function: this is to reckon the number of oscillations that the pendulum or the balance wheel executes during a determined time and to indicate this number by means of hands on a properly-divided dial. We must, therefore, combine the relation of the numbers of teeth in the wheels to the numbers of leaves in the pinions, so as to make this indication conform to the division of time. Thus, the center wheel carrying on its axis the minute hand should complete one rotation during one hour, and the fourth wheel carrying the second hand should make one revolution each minute.

(The hour hand is carried by a wheel forming part of an accessory wheel-work, which will occupy our attention later.)

Escapements.

70. Several kinds of escapements have been constructed, differing more or less from each other, but whatever they may be their function consists always in restoring to the pendulum or to the balance wheel the speed which the passive resistances have made them lose. The most perfect escapement will be the one which will effect this work by altering as little as possible the duration of the oscillation.

Since the movement of the balance wheel as well as that of the pendulum is an oscillating movement, the escape wheel is arrested during part of the oscillation; it is only when the balance or the pendulum has traversed a determined arc that the wheel becomes free and is put in motion. During this time it acts either directly on the balance, as in the "cylinder" escapements or the "detent," or on an intermediate piece, as in the "anchor" escapements. After having traversed the angle of impulse determined, the wheel is arrested anew until another disengagement. The manner in which this arresting is produced differs according to the kind of escapement.

71. In most of the escapements the action of each tooth of the wheel corresponds to two oscillations of the balance wheel or pendulum. Thus, in a watch, the balance wheel executes 30 oscillations during one complete revolution of a wheel of 15 teeth; in a clock, the pendulum makes 60 oscillations during one revolution of an escape wheel of 30 teeth.

72. To recapitulate, the study of the functions of horological mechanism can be divided into four principal parts, which are:

1. Power—study of motive powers.
2. Transmission—study of wheel-works and gearings.
3. Reception—study of the escapements.
4. Regulation—study of regulating and adjusting.

Maintaining or Motive Forces.

The Weight as a Motive Force.

73. We will adopt in the beginning as *units* in the calculations, the *millimeter* as unit of length, the *gramme* as unit of weight and of force, which gives us for the unit of mechanical work the *grammillimeter*. We will choose the *second* as the unit of time.

74. Among all the forces which are used in horology in order to maintain the oscillations of the pendulum, the weight is at once the most regular, the most simple to obtain and the one whose intensity can be regulated with the greatest facility.

75. If a certain weight P (Fig. 13) is suspended at the end of a cord wrapped around a cylinder the radius of which increased by half the thickness of the cord is equal to r , the work of this force while the cylinder executes one revolution will be expressed by (38)

$$P \times 2 \pi r.$$

Dividing this work by the number N of oscillations that the pendulum executes during one revolution of the cylinder, we will have as quotient the mechanical work developed by the weight during one oscillation of the pendulum, thus:

$$WP = \frac{P \times 2 \pi r}{N}.$$

We know that a part of this mechanical work is lost during its transmission to the pendulum: calling W_u this last work, we should have the equality

$$WP - W_u = W_p,$$

in which we will replace WP by its value, thus:

$$\frac{P \times 2 \pi r}{N} - W_u = W_p.$$

We see then that the determination of the work which the pendulum receives at each oscillation (W_p) depends also on the knowledge of the work lost during its transmission by the wheel-work and the escapement. We understand, consequently, the difficulty that there is to determine the motive work, since this work does not depend alone on the weight and on the dimensions of the pendulum but also on the resistances to be overcome during an oscillation.

Here are, however, two calculations taken from practice which will aid in more firmly fixing the ideas on this subject:

76. *First Calculation.*—The motive weight of a regulator beating seconds is 2000 grammes; this weight is suspended at the end of a cord which unwinds from a cylinder, with a radius of 15 millimeters. What will be the work produced by this weight during the unit of time?

The mechanical work effected by the weight while the cylinder executes one revolution will be

$$2000 \times 2 \pi \times 15 = 188496 \text{ gr.m.}$$

A wheel A is fastened to the cylinder (Fig. 13) gearing in a pinion which carries on its axis a second wheel B , which in turn gears into a pinion b , this last pinion carrying on its axis the minute hand should then execute one revolution an hour. The numbers of teeth and leaves of these moving bodies are distributed in such a manner that the pinion b executes 45 turns while the cylinder makes one; consequently, one revolution of the cylinder takes place in 45 hours or in

$$45 \times 60 \times 60 = 162000 \text{ seconds} = N.$$

We will then obtain the work produced by the weight during one oscillation of the pendulum, by the application of the formula,

$$WP = \frac{P \times 2 \pi r}{N} = \frac{188496}{162000} = 1.163 \text{ gr.m.}$$

We will show the manner of calculating the work lost during the transmission when we treat of the questions of frictions, of the inertia of the wheels, etc.; for the present, let us admit these calculations as made and adopt for this special case the value

$$W_u = 0.413 \text{ gr.m.}$$

We will then have

$$W_m - W_u = W_p,$$

or

$$1.163 - 0.413 = 0.75 \text{ gr.m.}$$

The weight of 0.75 grammes, exerting its action on a distance of one millimeter, is then sufficient to keep up the oscillations of a pendulum whose weight is about 6500 grammes. The amplitude of the oscillations is $2^\circ 6'$.

77. Although that which follows is a little outside of the problem which we have just solved, let us profit, however, by the data that we possess to calculate further the angle

$$BOA - B'O A \text{ (Fig. 10).}$$

This adjunct to the preceding solution does not, moreover, lack in interest.

Following an equation previously established (56), the work of the force capable of maintaining the oscillations of a pendulum was expressed by

$$W_p = P \times a b.$$

We can then put

$$P \times a b = 0.75 \text{ gr.m.};$$

or, again,

$$a b = \frac{0.75}{6500} = 0.0001154.$$

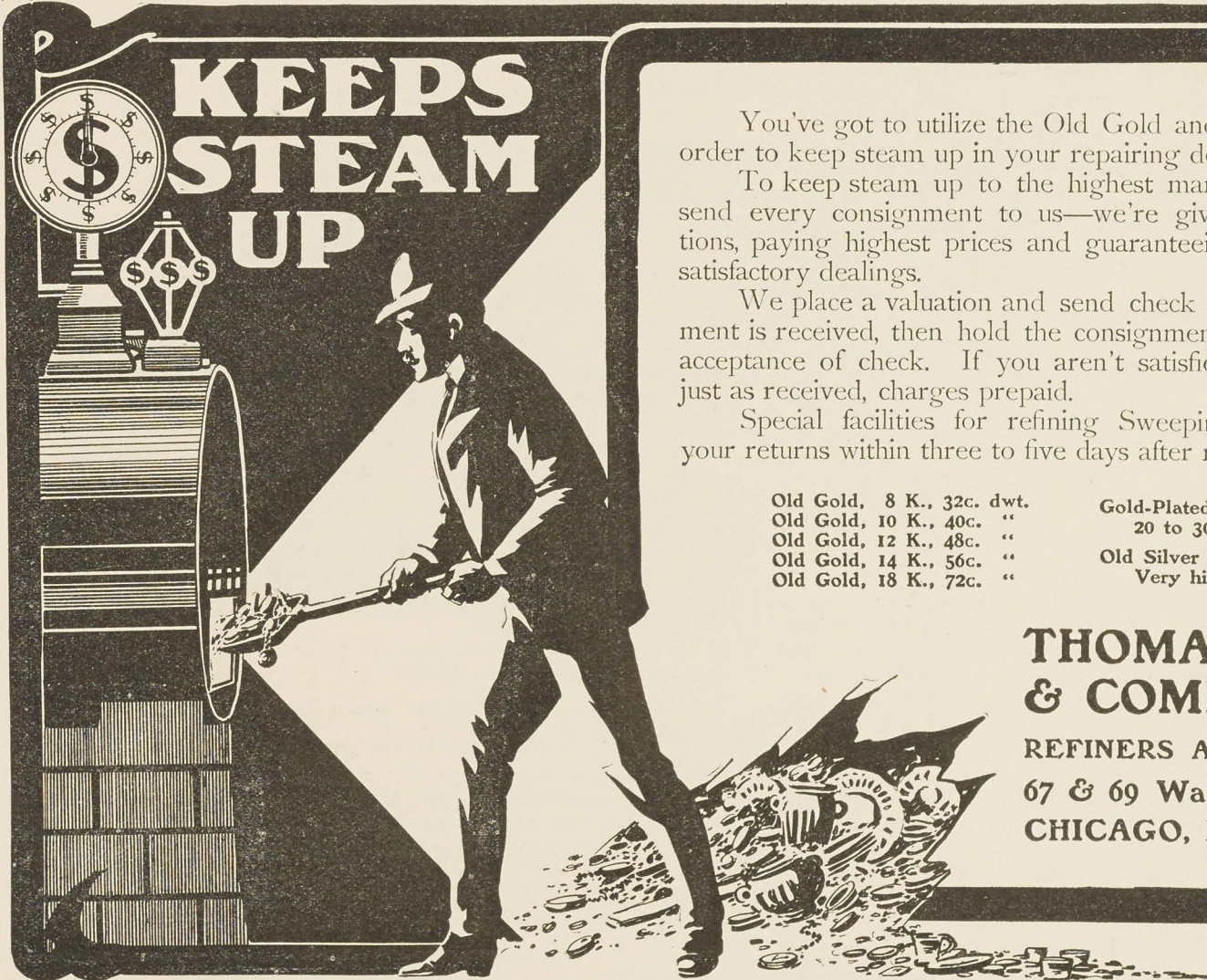
The length of a simple pendulum beating seconds is about 994 millimeters for our latitude.* Let us suppose that the entire weight of our pendulum is assembled at a single point, the distance from the center of gravity to the center of suspension will then be equal to the length of a simple pendulum beating seconds. We will have

$$\begin{aligned} Ab &= 994 - 994 \cos AOB \\ Aa &= 994 - 994 \cos AOB'. \end{aligned}$$

*Latitude of Neuchatel

(TO BE CONTINUED)

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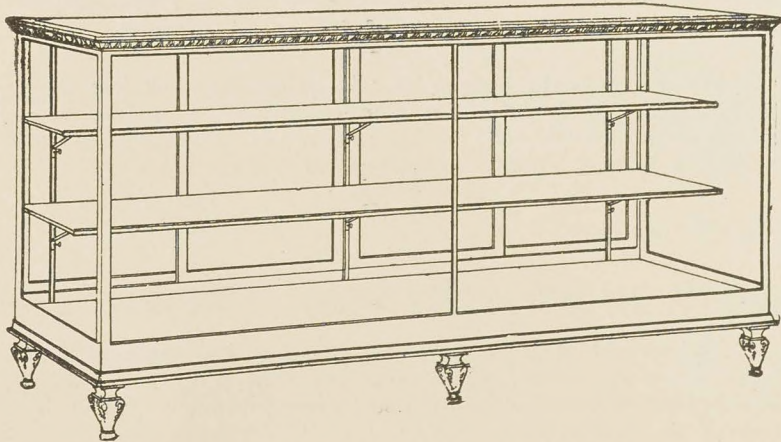
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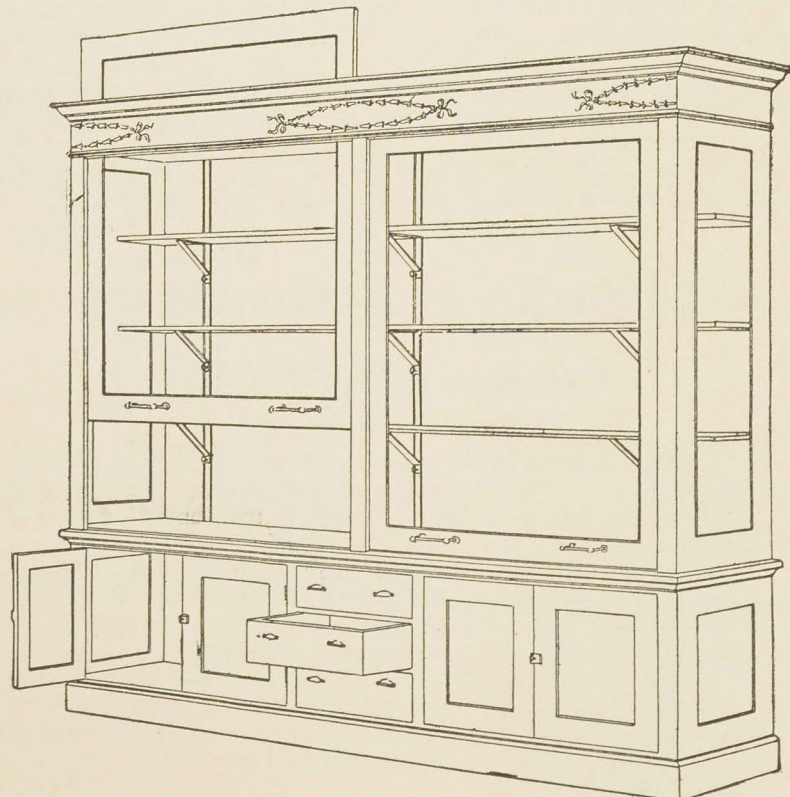
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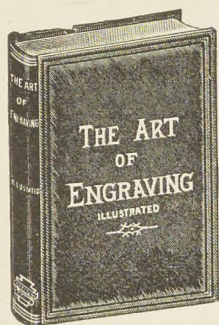
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(Continued. Part XV. Begun in March, 1903)

When the graver point arrives at the top guide line, the graver being held in the position necessary to cut the hair line as mentioned, the graver is simply dipped in it and pushed quickly directly downward without turning over to the right or the left. This swells the line as much to the left as to the right, and then, instead of breaking the cut off by lifting the graver directly up when the proper length has been reached, it is thrown out by throwing it more to the front thus ending the stroke oval shaped instead of the shape shown at *B*. The latter shape is the shape of ending in which this cut is practiced by some beginners. They think that when a heavier stroke is desired the proper thing to do is to turn the graver to the right, which in almost all cases is true, but not in this case for the reasons above mentioned. Therefore, the student is requested to give special attention to these two cuts in cutting the lower-case letters.

At *C*, Fig. 63, we show the *S* where the dotted line represents the hair line and the graver in position to cut the shade stroke at the right. This stroke is cut upwards as the graver indicates, but it will be seen that the stroke is not a curved stroke all the way to the top. When arriving at the point marked *A* the shade stroke is converted into a hair line, and from that point to the top guide line the line should be made a perfect hair line, and from that point of the letter indicated by the point of the graver around to the beginning of the letter it should also be a hair line. It might be well to here

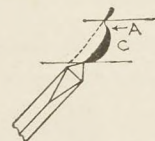


Fig. 63

state to the student that almost invariably when a beginner cuts script letters for the first time he does not sufficiently discriminate between the hair lines and the shade strokes.

As has been mentioned previously the natural tendency of the beginner is to turn the hand over in holding the graver so that it will make a shade stroke, and this tendency follows the beginner through his preliminary work if he is not extremely cautious, and it will give him trouble when he arrives at the stage of cutting the most beautiful letters, the script alphabet. A hair line should be a hair line from beginning to end. Hair lines in script letters never vary in their width. The shade strokes should increase and decrease in their widths uniformly and a shade stroke should never be continued past a point where a hair line begins, and as to where such point of beginning and ending exists we will show the complete script alphabet so that the student will have an accurate guide. Another letter that gives the student some trouble is the lower-case *E*, the trouble being that he does not start to cut the loop at the top correctly. Some will begin too far down and some will begin too high. All these things should be governed by set rules. The rule in this case is to begin to cut the loop at the top at a point midway between the top and the base guide line, as shown in our illustration at Fig. 64.



Fig. 64

At Fig. 65 we illustrate the down stroke of an *H*, *K* or *F* with the graver in position at the bottom to cut the little extra cut indicated by the dotted line *B* at the bottom of said stroke. That portion of the stroke *C*, which is the termination of the three letters mentioned as here outlined, is in the form that it would end up by cutting downward. In other words, it is impossible to cut it so that it will end square on the lower guide line. It is therefore necessary to cut the little extra cut indicated by the dotted lines in order to

square it up. The graver in cutting this extra cut is inserted at the base of the stroke as here indicated.

The strokes that we have here mentioned constitute all of the strokes in lower-case script letters that would need special attention. All the other strokes being easy to cut, or of such simple character that the student would be able to cut them with the instructions he has received in regard to other cuts, further reference to the lower-case letters is deemed unnecessary.

We would say, however, in concluding the lower-case script letters that in cutting them the down strokes are all cut first; then the plate or article in hand being engraved is reversed and all the shade strokes cut up; then all the hair lines are cut, which finishes the letter.

The word "Ethelind," shown at Fig. 66, is here shown as it would appear after the engraver has cut all of the down strokes and

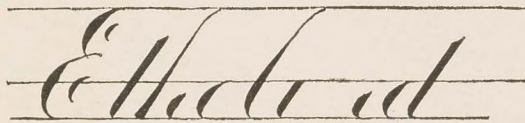


Fig. 66

is ready to cut the up strokes, which are the half of the stroke of the *M* at the left and the first shade stroke of the *N* and the upper half of the shade stroke of the *H* at the right.

The Formation of Script Capitals

The graver is usually, if not always, thrown out in script letters at the center of a curve at the top or at the bottom. As shown by the method of cutting the word "Ethelind," it is plain to be seen that the object in throwing the graver out at the termination of a curve at the top or at bottom is to avoid the necessity of turning the article completely around in one's hand. This method of engraving is more rapid than any other, and enables the student to quickly terminate a shade stroke and as dexterously begin a hair line. If letters are cut in this manner, it is not necessary to turn the graver and the article in hand so much, which, by the way, are both turned automatically when engraving. In this case it would not be necessary to turn, in making a curve, more than 45° of a circle, which enables us to do the work by cutting the strokes up and out and down and out with more rapidity and a higher degree of accuracy.

At Fig. 67 we illustrate the complete script alphabet. We

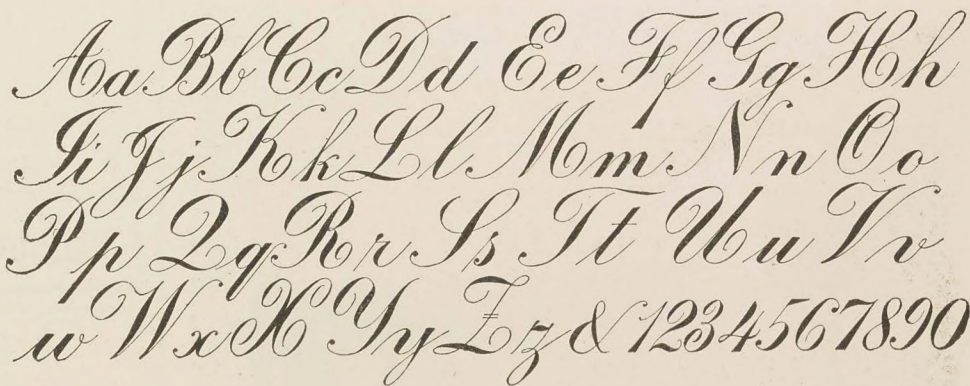


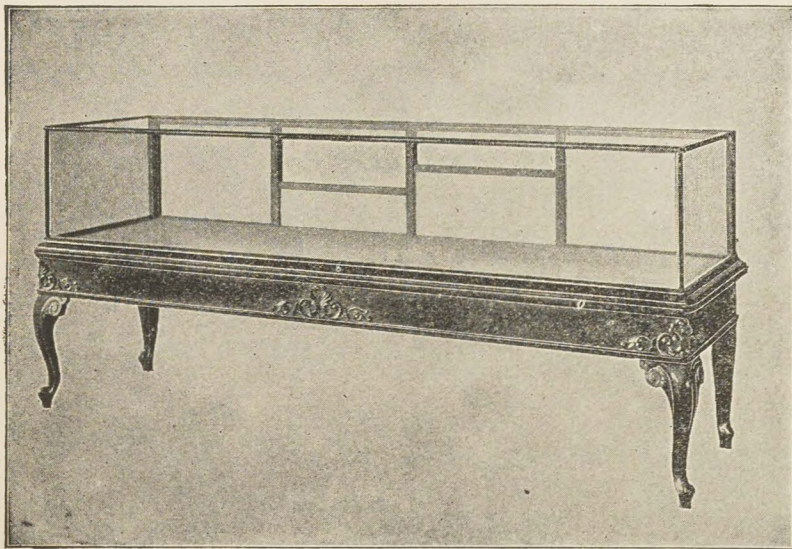
Fig. 67

here show the lower-case letters, previously described, simply to illustrate their respective relation in size as compared with the capitals. It will be seen that the lower-case letters are one-third the height of the capitals. In the first letter of the alphabet, the capital *A*, it will be seen that the loop at the lower right side of the letter should come up half way or nearly half way to the top of the letter, and that the hair line should be a plain scroll, curving from the center down to the left. The shade stroke at the top should start in a very fine hair line and the shade should be gradually increased until nearly two-thirds down, at which point it should be gradually diminished until the stroke nearly reaches the base line, at which point it is thrown out. The student will remember that we have formerly mentioned the fact that all loops should be cut by throwing the graver out in the center of the loop.

(TO BE CONTINUED)

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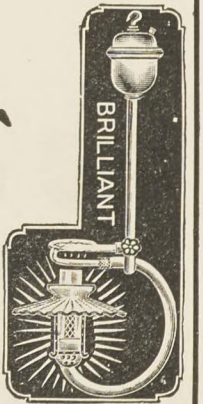
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A Grinder for Watch Glasses

Article No. 38 of the serial entitled "Cleaning and Restoring," begun in the April, 1901, issue of THE KEYSTONE.

IT may be well, before proceeding with the details of our glass grinder, to say a few words more about the lathe head we described in our last preceding article. The spindle we described was made by drilling, as we then suggested, but steel tube can now be obtained, which is smooth on the inside, with the walls thick enough for turning down to form the shoulders of the spindle. Such tubing is really the cheapest material for making such spindles, as it saves much labor in boring out, as the cone centers of the lathe can be set in the tube at each end. We would also add that such a lathe head is useful for many other purposes; in fact, a lathe head made in the manner described is about the best polishing head one can employ.

Practical Tool Making

By boring out the hole in the tube slightly taper, cone shank drills can be fitted to run most delightfully true.

We show at Fig. 1 a spindle made in this way, having the hole indicated by the dotted

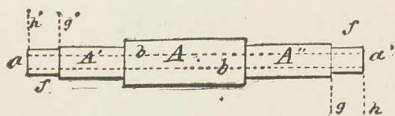


Fig. 1

lines *b b* tapered out a little at each end, say to the Morse taper ($\frac{5}{8}$ " to the foot). This taper need extend into the tube only for about $\frac{3}{4}$ ". We show at *d B'*, Fig. 2, such a

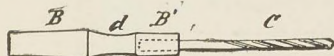


Fig. 2

taper. The part at *d* is turned down to a sort of neck, to allow the part *B'* to be readily heated with an alcohol lamp for the purpose of melting soft solder to hold the drill. A drill set with soft solder while the lathe is running, runs as true as if set with lathe cement, and holds a thousand times better. We will speak further of this type of lathe after we describe the device for grinding watch glasses.

We show at *D*, Fig. 3, a vertical section of the chuck shown at *E*, Fig. 1, of our last preceding article. This chuck consists of a disk of either metal or hard rubber carefully fitted to the screw *f* of the lathe spindle *A*, so that on exhausting the air from the recess *H* on the face of the chuck, the glass *G* will be held tight against

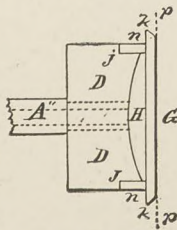


Fig. 3

n. It is well to bear in mind, that inasmuch as the bulb or ball shown at *F* in former article, must necessarily be somewhat small, it is well to make the recess *H* of as small capacity as possible, in order to make the atmospheric pressure against the glass *G*, Fig. 3, of the present issue, as great as possible. Good judgment, aided by understanding exactly what we wish to accomplish, will soon set us right.

For grinding the edges *k k* of the glass *G*, Fig. 3, we have recourse to the concave tool shown at Fig. 4, which is a similar section to Fig. 3, that is, a longitudinal section on the line of the axis of the lathe spindle. The oblique lines at *i i* indicate the interior surface of the grinder. There should be several sizes of these concaves, to fit the different sizes

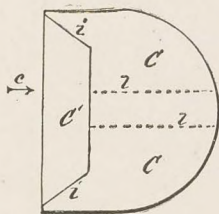


Fig. 4

of glasses to be ground. There should also be several sizes of chucks like *D*, Fig. 3. We should, probably, before we proceed further, say something more about the rubber band *n*, Fig. 3. It may be a little difficult to obtain such bands, which are perfectly adapted for this purpose, but generally, such bands can be found in druggists' sundries. Sometimes it is necessary to use some compound to make the joint between the rubber and the glass air tight.

Usually such joints can be rendered tight by a mixture of glycerine and white wax, compounded by heating the glycerine, and adding the wax until the right consistency is obtained. The concaves like *C* can be made of wood or metal. Fine-grained, hard wood, like dogwood, or gum tree, also apple and pear wood, can be used. To this list we can add boxwood and white holly. The grain of the wood should run in the direction of the dotted lines *l l*, Fig. 4. For grinding material, about the best substance is carborundum. It comes in all grades of fineness. Type metal also makes good concaves, the chief trouble with it lying in its weight. Wood is the best for polishing the ground surface, and the material to employ is oxide of tin, or as it is known in the arts, "putty powder." Fig. 5 is a view of Fig. 4 seen in the direction of the arrow *c*.

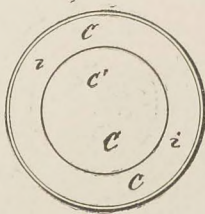


Fig. 5

A concave formed out of sheet copper, about $\frac{1}{10}$ " thick, spun up or beat out over an extra convex case stake, also makes a very good tool for grinding, the abrasive material being emery or carborundum. We

show such a concave tool at *E*, Fig. 6. The protuberance at *F* can be made of some of the hollow ball brass buttons, soft soldered to *E*, to serve as a handle. An old-fashioned high (convex) watch glass also does nicely on the principle spoken of early in this article, when we mentioned the cork holder process for using with the bow lathe. The concave tool at Fig. 6 can be used to illustrate the manner of using such a high watch glass, the button *F* being supplemented by a cork or small block of wood, cemented to the glass *E*.

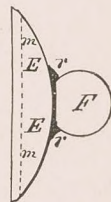



Fig. 6

When such a glass is used, it is employed either wet or dry, the two surfaces of glass seeming to attack each other in a peculiar manner. For glasses nearly flat on the inside, a flatter convex is employed and the grinding managed by reversing the sides of the glass *G*, as relates to the chuck *D*. For rounding the edges of the glass *G*, a larger convex is employed than to just match the curvature of the edge. In this, as in most mechanical matters, the best guide to success is experience after having the proper tools provided. The glass grinders (large convex watch glasses) can be manipulated to almost produce a polish, so much so, in fact, that a copper tool like *E*, or the wood concave like *C*, Fig. 4, will soon give a perfect polish. A liberal supply of grinding tools, like *C E* (both copper and glass), should be kept on hand, so that when we are called upon to fit a glass in this way, we can do it quickly and with a good show of dexterity and skill; all such things have a tendency to impress the customer with the ability of the workman and his facilities for doing work. Such matters are of more importance than most people take into thought. It is not necessary that a man should run down his opponent in business. Most customers can see pretty well for themselves.

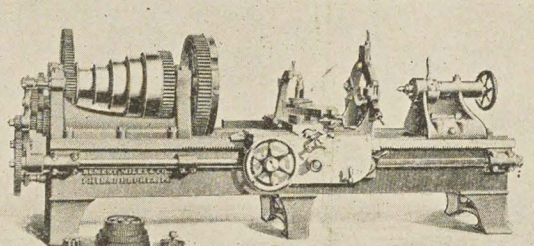

[TO BE CONTINUED]

Jewelry and Magic

According to the conclusions of Prof. W. Ridgeway, finger rings, earrings, bracelets, brooches and other articles of personal adornment originated not from the esthetic sense of our remote ancestors, but from their belief in magic. Even civilized men to-day sometimes entertain a superstitious regard for small stones and pebbles of peculiar shape or color, and carry them about as charms. Professor Ridgeway says the Greeks and Asiatics used stones, beads and crystals primarily as amulets, and cut devices on them to enhance their magical power. The use of such stones as seals was secondary, and may at first have been for sacred purposes only. When a primitive people first find gold they value it only for its supposed magic, and wear nuggets of it strung with beads.



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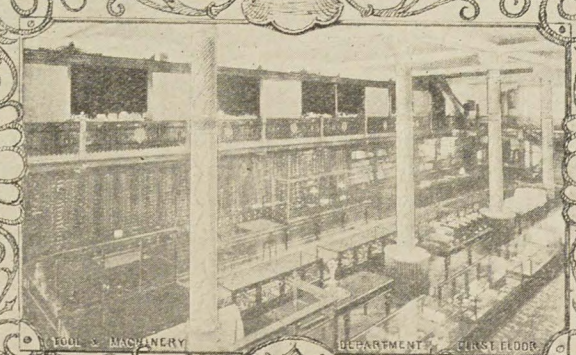
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Practical Outfit for Wet Assaying Gold

Article No. 43 of the serial entitled "Gold Working," begun in the November, 1900, issue of THE KEYSTONE.

THE entire outfit for wet assaying need not cost to exceed seventy-five cents. This estimate would not, of course, include the tripod, except we made it ourselves. The iron ring shown at Fig. 4, of our last preceding article, is best made by getting the ring *D* cast. Let the inner diameter of the hole in the ring be 5" and the outer diameter 7"; this will make the flat band of the ring 1" wide, and to have it steady let it be $\frac{1}{4}$ " thick. The legs *C* are of $\frac{1}{4}$ " round iron and riveted in by making the top ends a little tapering so that the process of riveting in will draw the leg tight in the hole.

It is a good plan to saw off the legs after they are riveted in place, so as to insure their being of exactly the same length and also to accommodate the height of the tripod to the kerosene lamp or Bunsen burner placed under it. The sand bath dish can be made from any little stewpan which will fit the ring. It is well to take some care to see such pan fits well, for even if extreme care is observed the handle *b* may be hit and the valuable contents of the flask spilled. Care is everything in such operations, and extends to such little matters as turning the handle *b* back out of the way during the several processes.

Dissolving Out the Silver in Wet Gold Assay

Usually the acid will attack the silver rapidly at once, but if not, place the flask in the sand bath and heat until a brisk action ensues. There will probably be enough copper in the silver to give the solution a decided green color, but this will do no great harm. It may not be amiss to say that the best line of policy to pursue in the wet assay of gold is to use nearly pure silver for alloying the gold, as it saves somewhat in acid, but the ordinary old silver such as accumulates in a jeweler's store can be used. The refining processes we shall describe will furnish an abundance of fine (pure) silver which can well be used for alloying gold subjected to the wet assay process. After the acid ceases to act the supernatant acid is poured off, and it is well to pour on the gold another dose of nitric acid diluted as before with half its bulk of water and again heat up to see if any chemical action will be renewed, which can be told by red fumes rising in the flask.

The second dose of acid is only a precaution, as it is to be understood that all the silver is dissolved and nothing remains but the gold in the shape of a brown-black pow-

der. Still, the silver seems to resist the acid to a certain extent, hence some assayers boil the gold residuum in sulphuric acid to remove a last trace of silver. We would here beg to make some additional and explanatory remarks. When speaking of the melting together of the silver and gold we recommended careful stirring, and also a second fusing and process of granulation to insure a perfect mixture, because if any alloy of gold and silver with the percentage of gold above one to two of the silver, the acid will not act on it and the refined gold will retain a trace of silver. There is a sulphuric acid process which gives better results than the nitric acid one, but it is too complicated for general use.

After the silver is all dissolved from the alloy, pour off the acid. This second acid can be used for the first acid in any subsequent assay, and should be placed in a separate bottle and marked as to what it is. The idea to work on is, that chemically pure nitric acid, diluted with one-half its volume of water, is placed on the gold alloyed with twice its weight of silver; said alloy being granulated by the process described, and the action of the acid stimulated by heat to do its uttermost. Economy would dictate that we exhausted the acid, that is, made it eat all it would. But in carrying out this plan we would be apt to leave some of the silver undissolved, hence we use the second dose of acid, which we remove and employ, as above stated, for the next assay.

After the acid is removed from the brown-black precipitate, said precipitate is washed by pouring on water and then pouring it off again, repeating the operation several times. To reduce this precipitate to an ingot it is mixed with carbonate of potash and fused in a black-lead crucible. A common sand or Hessian crucible can be used if we take the precaution to "glaze" it by dusting it inside with pulverized borax, and heating it red-hot to fuse the borax. This operation prevents the gold from entering the pores of the crucible.

When the precipitated gold is to be used for electro-metallurgical purposes it can be dissolved in aqua regia, and precipitated with cyanide of potassium or ammonia without the bother of melting. To recover the silver we have several processes at our disposal, the most practical one seems to be to place strips of sheet copper in the acid solution, when the silver will be precipitated as pure silver which can be scraped from the copper, collected, dried and mixed with *sal tartar* (carbonate of potash) and fused to a button in a black-lead crucible. Another plan is to add a solution of salt to the nitrate of silver as long as any white precipitate is formed.

This white precipitate is chloride of silver, and can be used direct for making

silver-plating solutions. It can also be reduced by placing strips of zinc in a watery mixture to which a few drops of sulphuric acid has been added.

Chloride of silver is not held in very high repute by electro-platers for making plating solutions, as it is generally believed that a deposit of silver from solutions made from the chloride is apt to strip when burnished. The electro-deposit from solutions made from silver chloride is very white, and to be highly recommended for matt goods and clock dials.

The copper solution, after precipitating the silver, can be deprived of its copper by inserting strips of zinc, which will throw down the copper in fine powder. Such copper dust, after thorough washing, can be mixed with mercury for making cupric amalgam for mending plated goods like cake baskets.

In our next article we shall take up the method of cupellation, but we would say to our readers that the wet assay we have described is, in our judgment, much the most desirable for general use in jewelers' places of business.

[TO BE CONTINUED]

History of the Madstone

The madstone cannot be assigned to a place either in geology or mineralogy, that is to say, a stable position. Its composition is not definite; and it may possibly be found upon any beach or in any gravel pit, and the supply is always equal to the demand.

There are even now many of these precious talismans in this country, and the believers in their efficacy always know where the nearest is kept. One of them had been the property of an Ohio negro, and was placed, after the death of the owner, in the State library at Columbus. There it was recently applied to the wound caused by the bite of a supposedly rabid dog. The dog recovered, and the woman to whom it was applied died of blood poisoning, caused by the unclean contact.

Such a stone was kept in the Virginia State penitentiary for years and was open to all comers for application to the bite of a mad dog, or other allied wounds. One such (perhaps the same) was at a later date sold at auction for \$39.

Still more famous was that brought from Russia in 1887 by a physician of that country, who settled in Nevada. It had previously been exploited in that country for at least a century and a half, a fact supported by documentary evidence. The document was written in native Russian, and as nobody concerned could read it everybody implicitly believed what they were told of it. The owner offered the stone for sale at \$1000, and a joint stock company was formed for the purchase. A number of shareholders advanced \$1 each, and the balance was made up by a farmer, who became its keeper when the purchase was completed. Its fame still flourished, and it is said that an offer of \$3000 has been refused for it.

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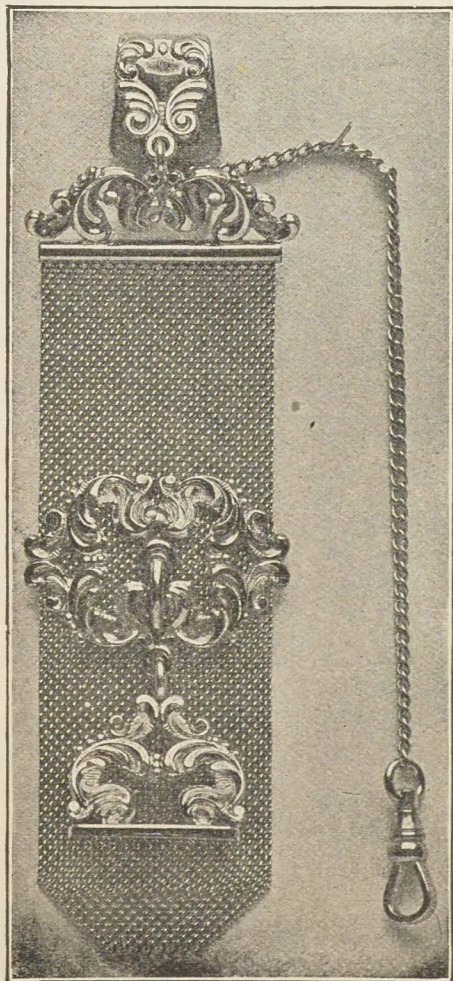
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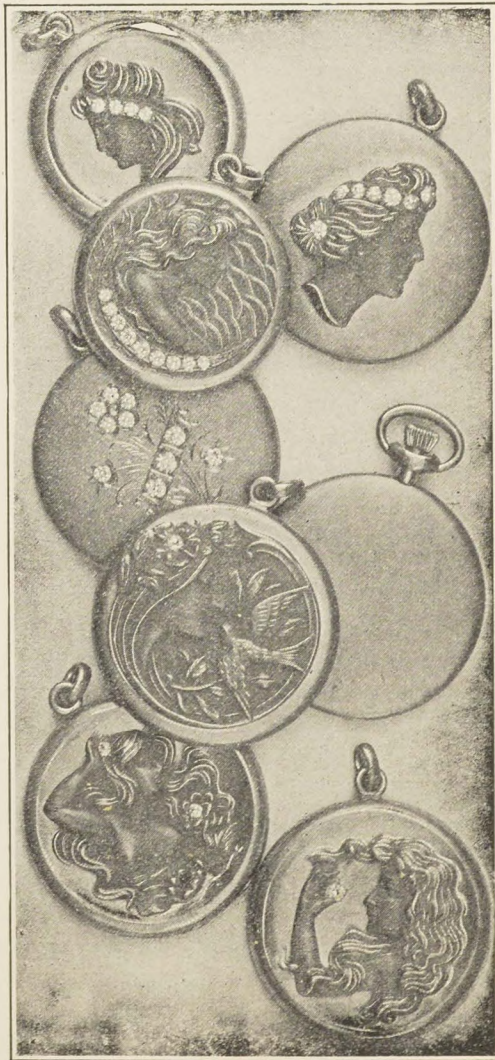
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Annual Clocks and their Working

Translated for THE KEYSTONE from the Revue Internationale de L'Horlogerie.

THESE clocks, whose motor is a spring, are called annual, because a single rewinding is sufficient to keep them going for four hundred days. It is interesting to examine the special construction which allows of so long a period.

In the first place the motive force is transmitted to the movement by the intervention of three supplementary wheels, in order to avoid the employment of too large a barrel; the third wheel is omitted; the motion work is geared immediately with the pinion of the vertical wheel. This arrangement secures a long period of going, but above all, this result is secured by the use of a torsion or rotating pendulum, which is suspended to a long blade of thin steel, receiving its impulse from the lever. The lever engages with a fork, in which the spring of the pendulum (that is, the thin blade) is adjusted in such a way as to form the pivot or axis of rotation.

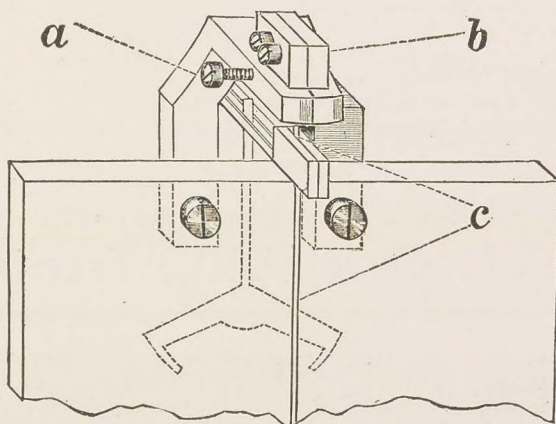
It is evident that the system of the three intermediate wheels, of which we have spoken, requires for the motive force a barrel spring much stronger than that of ordinary clocks. In studying the dial work we notice another important feature. The cannon pinion is provided with a re-enforcing spring, serving as guide to the dial work, on which it exercises a sufficient pressure to assure precise working. This pressure constitutes a delicate function, because if the dial work presses too much on the pinion of the minute wheel, the latter engaging directly with the vertical wheel, would transmit to the latter all the force employed in setting the hands. The teeth of the vertical wheel would incur the risk of damage and the consequent stopping of the clock.

For the suspension of the pendulum it is particularly necessary to verify the drop or unlocking of the teeth of the vertical wheel, which is accomplished in the following manner: The pendulum is suspended and the locking position marked, taking as a guiding point the long regulating screw, which, fixed transversely in the support, serves for adjusting the small suspension block. An impulse of about a third of a turn is given to the pendulum while observing the vertical wheel. If the oscillations of the pendulum, measured on the two sides, taking the locking point as the base, are symmetrical, the drop is also equal, and the rate of the clock regular and exact; but if, on the

contrary, the teeth of the vertical wheel are unlocked sooner on one side than on the other, so that the pendulum in its swing passes beyond the symmetrical point on one of the pallets and does not reach it on the other, it is necessary to correct the unequal drop in a way which we will describe.

Our Illustration Explained

The small block in the illustration, in the form of a vise *b*, between the jaws of which the steel blade is pressed by two screws, has a lower cylindrical portion, which is fitted in a hole made in the support, and is kept immovable by means of the transverse screw *a*. If the vibration of the pendulum passes beyond the average swing on the left side, it is necessary to unscrew the screw *a* and turn the extension block *b* slightly to the right. If the deviation is produced in the opposite direction, it is neces-



sary to turn it to the left. The watchmaker must find the proper measure of these corrections. They should be as small as possible, and the operation should be repeated until the drop is exactly equal on the two sides. The more exact this operation the surer will be the desired results. As the drop is often disturbed by the fact that the long thin steel blade is twisted, it is necessary to test the escapement anew when the clock is put into position on the premises of the buyer.

The adjustment of the clock of four hundred days is effected with the aid of regulating weights, placed on the disk of the pendulum. By moving these away from the center by means of a screw on the center of the disk, the centrifugal force is augmented, the oscillations of the pendulum slackened, and the clock goes slower. The contrary effect is produced if the weights are brought nearer the center. If necessary to replace the pendulum spring, the adjustment is commenced by shortening or lengthening the blade to a certain extent. For this purpose a bit of the spring is allowed to pass through the suspension block as a reserve. If the restricted space does not allow of attaining

this end, it is necessary to increase the weight of the disk, adding one or several plates of metal in a depression made in the lower part, and removing the plates screwed to it, which are too light.

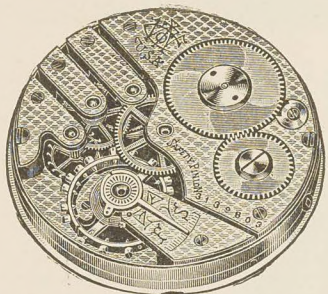
Repairing Annual Clocks

The points which we have noticed are of the most importance with reference to repair and keeping in order of an annual clock. It very often happens that the evil is sought for where it does not exist. The holes are stopped up and the gearing corrected, while a thorough examination would show that the stopping, or the irregular rate of the clock, proceeds only from the condition of the escapement.

Annual clocks are enjoying an increased favor with the public; their good qualities allow confidence, the rate being extremely regular, and when adjusted, not having a tendency to get out of order. They are suitable for offices; their silent course recommends them for the sick chamber, and the subdued elegance of their decoration, which is adapted to the styles of modern art, as well as to those of the empire, causes them also to be a valued ornament in the home.

What Asbestos Really Is

In the important work of protecting life and property from fire, there is a growing appreciation of the value of asbestos, and a constant increase in its use. It has a combination of properties unlike that of any other substance found in nature. No other product as yet discovered could take its place. It has been called mineral wool, and also the connecting link between the mineral and the vegetable kingdoms. After the fibers of asbestos have been separated from their mother rock they have a fluffy softness and whiteness much like that of wool or cotton, and by a process very similar to that of ordinary weaving, they are converted into cloth. It is a cloth, however, which, owing to its mineral origin, is impervious to fire, and herein lies its value. It is more and more extensively used in this country for fireproof curtains, for firemen's helmets, jackets and leggings, and for gloves and shields for men working at the mouths of furnaces. The texture of the fabric resembles that of canvas, so it is too coarse, as now manufactured, for such delicate materials as those of lace curtains and women's dresses, for which its use has been suggested, but an interesting way in which it is now utilized is in the work of surgeons in making splints and dressing wounds. Cotton and wool must be specially treated to be rendered absolutely clean and antiseptic, while asbestos is naturally so.



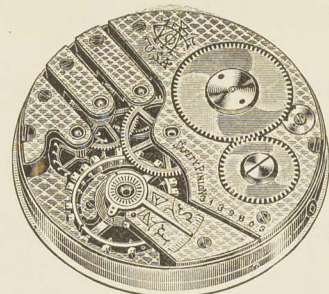
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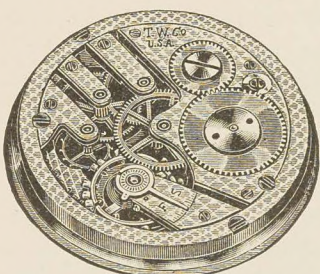
No. 135.
11 Jewels.



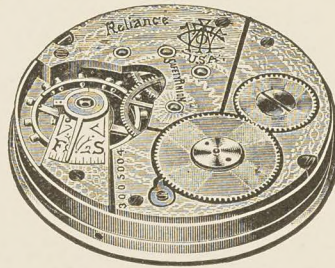
No. 135. Bridge Model, 16 Size, 11 Jewels.
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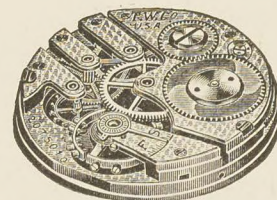
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Workshop Notes

Subscribers wishing inquiries answered in this department must send name and address—not for publication, but as an evidence of good faith. No attention will be paid to anonymous communications. Questions will be answered in the order in which they are received.

An INDEX to the questions answered in Workshop Notes department for each year accompanies each December number. Subscribers are requested to preserve these indexes, and, before mailing questions, to refer to them, as similar questions may have been answered in previous issues. These indexes are arranged alphabetically, according to subject covered in each answer, and tell the issue and page on which the information may be found.

"Acetylene."—Will you please give me what information you can as to the mixing of acetylene and air, etc.? I mean forcing air into the tank of carbide gas to give a stronger pressure.—The forcing of air into such a tank is something that should not be considered in any way. Rule No. 8 of the national board rules governing the construction of acetylene generators reads as follows: "Must be so arranged as to contain the minimum amount of air when first started or recharged, and no device or attachment facilitating or permitting mixture of air with the gas, prior to consumption, except at the burners, shall be allowed." This rule probably owes its existence to the fact that, owing to the explosive properties of acetylene mixed with air, machines should be so designed that such mixtures are impossible. In view of the fact that you think of increasing the pressure, we would call your attention to another rule, which provides that apparatus requiring pressure regulator must be so arranged that the gas pressure cannot exceed three pounds to the square inch, and that such apparatus must be provided with additional safety blow-off attachment located between the pressure regulator and the service pipes and discharging to the outer air. Regarding this mixture of acetylene and air, Professor Lewis, in his work on "Acetylene," remarks that the employment of a mixture of acetylene and air is precluded, because such mixture involves greater danger than would be incurred by the employment of pure acetylene, the temperature of ignition of acetylene mixed with 35 per cent. of air being, according to Le Chatelier, 480 in a large room. You do not state in your inquiry just why you desire to increase the pressure, but we infer that you desire to increase the illuminating power. Experiments have been conducted along this line, and it has been found that a mixture of acetylene with oil gas—particularly of an inferior quality—shows an enormous increase in the illuminating power, which is increased to about three times the original power. A small burner is less advantageous for a lighter gas than a larger one, whilst a large burner cannot be employed at all for a heavy gas. The photometric tests were conducted with the classes of burners now generally in use for lighting railroad cars, no special burners being employed. Each burner was adjusted to produce a full flame without considering the pressure at which the gas burned, and without taking into consideration the question as to whether the size of the flame was the most advantageous possible with regard to the consumption of gas and the illuminating power. It will be seen that the admixture of a greater percentage of acetylene does not show a proportionately favorable increase of illuminating power. In view of the fact that it is just the inferior sort of oil gas which would be improved first of all, the inferior kind now very commonly used, and that a mixture of this gas with 20 per cent. of acetylene—burnt through a No. 40, the burner now most in use on the railway systems—will increase the lighting power to three times its present value, it will be acknowledged that such an increase of lighting power will represent a tremendous progress in railway car lighting. Pure coal gas cannot be photometrically measured in the small oil gas burner, because it burns through these burners with a blue flame; but on mixing 30 per cent. of acetylene with the coal gas a considerable increase in the illuminating power of the flame was attained through various oil gas burners. A mixture of 30 per cent. of acetylene and 70 per cent. of coal gas showed an illuminating power equal to that of oil gas when burnt alone. If, therefore, the railways employ a mixture of coal gas and acetylene, they would be able to attain a light about equal to oil gas lights in a very simple manner by merely putting up an acetylene generator and suitable means for compressing gas at such points where coal gas is now to be had, thus forming a charging

station for the railway cars. The mixture of acetylene with oil or coal gas is effected by coupling two gas meters in the desired relative proportions, feeding the gases separately to each meter and combining the systems at the rear of the meters, where the combined gas is drawn off by pumps. In order to prevent the vibration from the pumps being communicated to the gas meters, a concussion box is inserted in the system, as in the case of gas motors.

"Restore."—Can you give any information regarding the restoring of a turquoise to its original color?—It is sometimes possible to restore a turquoise which has faded, by repolishing; but the operation is not always successful. It will probably be best for you to submit the faded stone to a lapidist; he will no doubt be able to tell you if restoration is possible.

"Winder."—(1) Please tell me the correct way to set up an American watch. I sometimes have trouble getting the fork or lever in place. I mean a full-plate movement.—There are several ways you can put a full-plate watch together, either one being correct: Some workmen place the fork in place in the upper plate and hold it there with a pair of tweezers until they put the plate in place, when they proceed to put the pivots in the jewel holes. Others use a small piece of brass wire flattened at both ends and bent as shown at Fig. 1. They place the fork in its place on the upper plate, using this brass wire to hold it there until the two plates are put together. Another way is to place all wheels in the lower plate and the fork in the upper plate, and by holding the lower plate containing the wheels in the left hand, the upper plate with the fork in the right hand and gradually bring them together, tilting each plate until they meet, being careful not to tilt the upper plate enough to cause the fork to fall out. With full-plate watches containing a straight-line escapement, and also with the everyday full-plate movement, a good plan is to put all wheels and the fork on the upper plate first, then put the lower plate on top. At first you may experience a little trouble to get the fourth-wheel pivot (second-hand pivot) and center pivot in place, but after a little practice it will come easy.

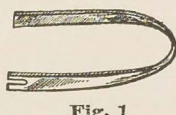


Fig. 1

(2) Please tell me if it is necessary to use a winder in putting in a mainspring. What is the best way?—It is always advisable to use a mainspring winder to put the spring in the barrel, for several reasons. One particular reason is, if you put the spring in with your fingers you are apt to throw the spring out of flat, which will cause it to bind top and bottom in the barrel. Again, the fingers and hands should not touch the mainspring any more than is necessary, as the perspiration will cause a mainspring to break quicker than anything else. The Starks mainspring winder is considered one of the best for all-around work.

(3) What is the best and quickest way to get the measurements and do a job of pivoting on balance staff, and do you think it best to put in a new staff?—It depends upon the workman and the kind of watch we are repairing as to whether we put in a pivot or a new staff; some workmen can pivot a staff in a short space of time and make a first-class job of it. A good pivoting job is as good as a new staff, provided it is done right—that is, it must be put in true, and the other end of the staff or the balance wheel, must not be discolored when drawing the temper; but we advise a new staff for all high-grade watches. In putting in a new pivot on a balance staff, the proper way to take the measurements is to remove both the upper and lower cap jewels and screw the bridge or cock in place; then take the complete length of the staff by using a Boley mm. gage, placing one point on the upper hole jewel setting and the other point on the lower hole jewel. We will say it measures 5.9 mm. Now suppose the lower pivot is the one that is broken off: we measure the length of the staff minus the pivot with the same gage. Say it measures 5.6 mm., which shows us that the staff is .3 mm. short. We now measure the staff from the roller-table shoulder to the broken pivot and find it to measure 2.1 mm. We know that this end of the staff is .3 mm. short and should measure 2.4 mm. After drilling the hole and putting the plug in we stone off the plug until the staff measures from the

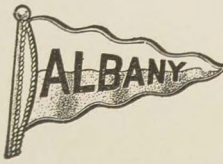
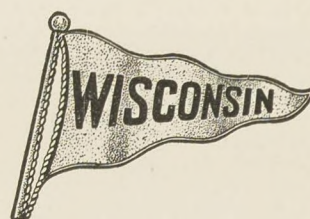
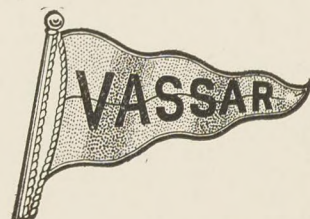
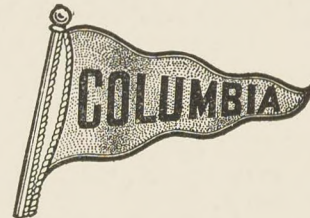
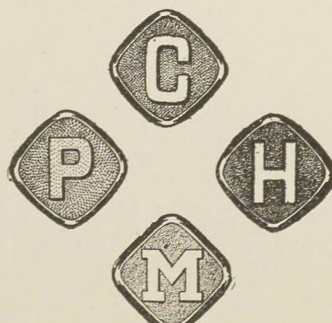
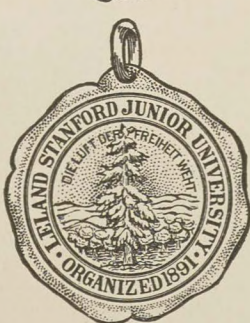
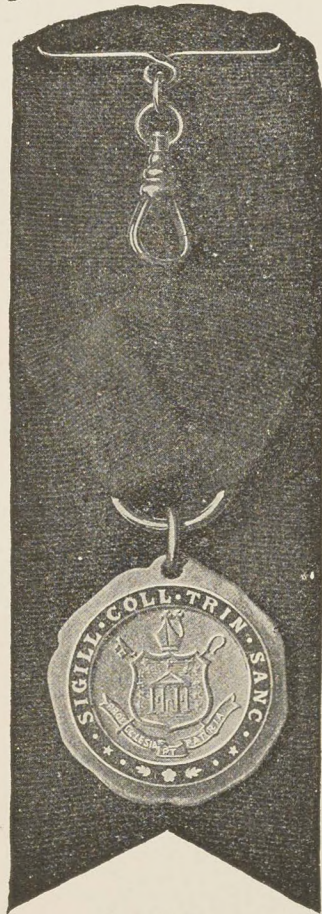
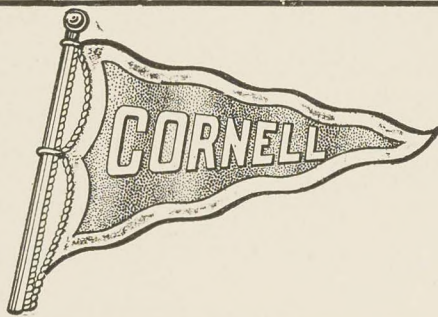
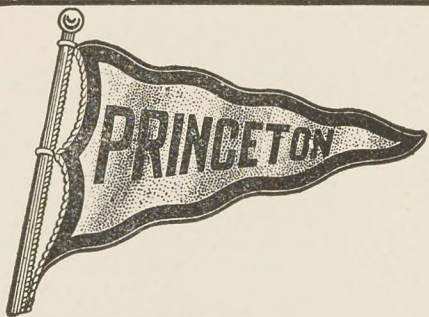
roller-table shoulder to the end of the plug 2.4 mm., when we turn and finish the pivot.

(4) I have a regulator that runs by weight and I want to know if heat will affect the time of it, such as a hot room, and in the summer time the sun shines on the pendulum late in the evening. Will that affect the time and how can I tell exactly when it is in beat?—A regulator should not be placed where the sun can shine on the pendulum, as the heat from the sun will cause the pendulum to expand and the clock will lose time. Any great change of temperature will cause the clock to vary in time. To put a clock of this kind in beat, hang the clock in such a position that when the pendulum is at rest one tooth of the escape wheel will rest on the center of a pallet stone. Screwed on the case of the clock at the bottom of the pendulum there is or should be an index marked with degrees. Now, while the escape-wheel tooth is resting on the pallet, as explained above, the point of the pendulum should point to zero on the index. Move the pendulum until the tooth just escapes and note how many degrees beyond zero the pendulum point is. Say it escapes 4° to the left: now move the pendulum until the next tooth escapes—it should escape 4° to the right of zero. But let us suppose it does not escape until the point of the pendulum registers 5° to the right of zero. In this case the rod attached to the pallets must be bent until the escape-wheel teeth escape when the pendulum is moved an even number of degrees to the right and left of zero, when the clock will be in beat.

"Turned."—When rubber, such as is used in optical instruments, turns yellow, can it be made black again?—As a general rule you can repolish such hard rubber and restore the finish. The process is much the same as that employed for polishing any other hard substance. A nice polish can be imparted with oil and flour of emery, but if a high, glossy polish is desired, it can only be obtained by using rotten stone and oil.

"Running."—What is the cause of a clock running dry in a few months? I was careful that there was not enough oil on to start it running out of the holes, but it had been worn and I took a punch and closed in the holes, so it ran very smooth and easy.—There are several reasons for a clock running dry. One is too much oil, which will cause it to run away. Hanging the clock in a very warm place, such as on a wall where there is a flue, will cause the oil to dry up in short order. Bad or old oil is another cause. But one of the main causes of clocks running dry is the method used by some workmen in cleaning and repairing them. If the pivot holes of a clock are polished with rouge, or burnished, or opened with a round broach after they have been closed, you will find that holes so treated will run dry in a much shorter time than other pivot holes, because brass, like other metals, is porous and absorbs oil. When a clock is cleaned by any method except burnishing or polishing the pivot holes, you do not take this oil from the pores, but just as soon as you do polish or burnish the hole you close up some of the pores and open fresh ones, which absorbs more oil, causing the clock to run dry in a short time. A little more oil on these pivots will remedy this fault.

"Steel."—Please inform me of a practical plan to soften steel—want it very soft.—There are various processes for annealing steel, some of which are better adapted to a given class of work than others. Inasmuch as you do not say just what you desire to anneal we will give a process well adapted for small quantities, as follows: Heat to a cherry red in a charcoal fire and pack in sawdust in an iron box; keep the steel in the pack until cold. Where the quantity is larger and it is desired to have it very soft, pack with granulated charcoal in an iron box, as follows: Having at least one-half or three-quarters of an inch in depth of charcoal in the bottom of the box, add a layer of granulated charcoal to fill spaces between the steel, and also one-half or three-quarters of an inch space between the sides of the box and the steel, then more steel, and finally one inch in depth of charcoal well packed on top of the steel. Heat to a red heat and hold same for from two to three hours, and do not remove steel from the box until cold.



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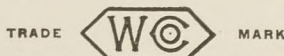
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Workshop Notes

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"Pivoting."—Should the staff be removed from balance while annealing and pivoting; especially in high-grade watches and where upper pivot is needed?—We do not think it advisable to pivot a balance staff of a high-grade watch; a new staff should be put in. In putting a pivot in a balance staff, whether the upper or lower pivot, the balance should not be removed; for you cannot remove it without injuring the hole in the wheel unless you turn away the part of the staff that is riveted over to hold the wheel on, then you would have nothing left to rivet it on with; then again there is always the danger of throwing the balance out of true in unstaking it. Let the wheel remain on the staff while pivoting it. To draw the temper of either end, we have described several methods many times in THE KEYSTONE. If you want to unstack the balance to put in a new staff, remove the old staff by holding it in a wire chuck by the hairspring shoulder and turn away the hub, when the wheel will come off true and without any trouble.

"Two Cuckoos."—I have two cuckoo clocks. They will run all right except the side where the bird comes out to tell the quarters. Once in awhile this side will start and will not stop until it runs down. Please tell me what to do.—From the description you give us we think the striking side of the clock is not put together properly; i. e., when the clock is done striking or strikes the right number of times it does not lock securely, or the wire that drops in the slot of the wheel is bent and does not drop in the slot free. Take the movement out of the case and make it strike the quarter hour, but allow the wheels to run around slowly and just as soon as it has struck note carefully just where the locking pin is in relation to the wire that it locks on. The pin, after the clock has just struck, should be no greater or less a space than three or four teeth away from the locking wire. If you will alter the train until the pin is in this position there is no danger of the clock keeping on striking, providing the wire that drops into the slots of the wheel is free.

"Variable."—I have an eight-day clock which gains about five minutes in the first three days after winding, and loses five in the remainder of the week, so it comes out even at each winding time. The clock is about new and, as far as I can see, in good condition. The suspension spring fits the slit tightly, and the crotch fits the pendulum rod with the least bit of play—rod is not worn; pallets are polished and the clock is in beat.—This is not a rare occurrence but happens quite often, and no doubt is caused by the mainspring being set. By this we mean the mainspring does not give equal power to the train, but binds, and sometimes there is very little power in the train while at other times there is a great deal. At all clock factories they test the mainsprings for power and to see that they unwind evenly; those that do are marked No. 1, and those that do not are called "seconds." The seconds are used only for the striking side of the clocks, while the perfect ones are used for the running, or time side. Sometimes, however, a seconds' spring will be put on the time side and will cause the clock to run in the manner you describe. We think a new mainspring will remedy the trouble.

"Pivots."—Please tell me the best and easiest way to polish pivots, as I have more trouble in getting a polish on pivots than any job I have to do.—The secret of getting a round and highly polished pivot depends as much upon the workman as it does with the method he uses. First, you cannot get a highly polished pivot if the staff or pivot you put in is soft; second, you must do your turning down with a good, sharp, polished graver, so that

when you are through turning the pivot it will be smooth and not contain deep cuts left by a dull graver. For polishing, all we need are iron and bell-metal slips (the shape and description of these slips you will find in the February, 1904, KEYSTONE, on page 247). With the iron slip we use oilstone powder and oil, and grind the pivot until it is perfectly smooth and the proper size; then use the bell metal slip with No. 1 diamantine and oil, which will take out all the small scratches and it is ready for the polish, which is done with a boxwood slip and No. 2 diamantine and alcohol. Take a small bottle and fill it about one-third with No. 2 diamantine, then put in enough alcohol to make it about two-thirds full; shake the bottle and after a few seconds use some of the alcohol from the top on the boxwood slip. This gives the finest particles of diamantine and will give a good polish. The lathe should be run at a fair rate of speed when using the boxwood slip. Some workmen prefer to use crocus and oil for the final polish—this is used on the boxwood slip the same as the No. 2 diamantine.

"Angular Motion."—The drawings in all the books on horology that I have ever read show the angular motions of the lever to be 10° . Do all detached levers have this amount of motion, or does it vary in different makes and sizes? If it differs, can you give me a table showing the motion for the different makes, grades and sizes of American watches?—Most all makes of American watches have 10° of fork action or very near it. It is an easy matter for any workman who is interested to tell exactly how many degrees of fork action any movement has. To do this we first provide ourselves with a very fine-pointed pair of spring dividers and set one leg to agree with the center of the pallet staff and the other leg with the tip of the horn of the fork as shown at Fig. 1, where the arc

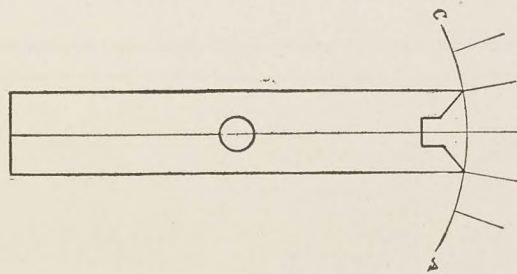


Fig. 1

AC shows that the dividers are set correctly. Now sweep on a piece of sheet brass or copper an arc to exceed 60° and with the dividers establish an arc of 60° , as shown at Fig. 2, between D F.

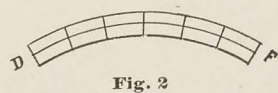


Fig. 2

Divide this arc into six equal parts, which represents 10° degrees of angular motion of the fork in question. Next cut out a small disk of thin sheet brass (B, Fig. 3) about the diameter of a roller table, and with the dividers set as when they sweep the arc D F, Fig. 2, sweep across the center an arc as shown at D C, Fig. 3. The full circle B represents the brass disk. Next take a 10° space in our dividers from the arc D F, Fig. 2, and lay three points off on this disk B as shown at R S T, Fig. 3. Lay the little disk B, with its 10° -degree spaces, under the fork in the roller sink of the movement and move it about with a pointed pegwood until one of the marks R S is under the fork and coincides with the tip of one of the horns of the fork. We now move the fork over to the opposite bank and by the space between R S judge with an eyeglass if the fork has 10° action. One disk of this kind will answer for the measurement of angular motion of all other eighteen size movements of that size and grade. It will be noticed on the disk B there are two extra curves besides the one marked D C, and the short lines R S T are made radial. If we sweep the curves from known radii we can use them for comparison for levers of different lengths.

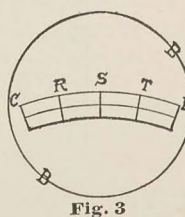


Fig. 3

"Cannon."—Will you please inform me how to prevent a cannon pinion from working upwards when setting the hands? This, of course, refers to a stem-wind movement.—There are many styles of cannon pinions used in different makes of watches and each would have to be altered according to the make and shape of the cannon pinion to prevent it from working up when setting the hands, but the principle is the same in each case. We will take for illustration a plain cannon pinion shaped something like Fig. 1. Suppose this pinion will not stay down on the center post, Fig. 2, the first thing we do is to put the pinion on the center post and see if it comes even with the top. As a rule it does. About half way down on the center post we turn a small groove with a graver as shown at Fig. 3, and measure this distance carefully from

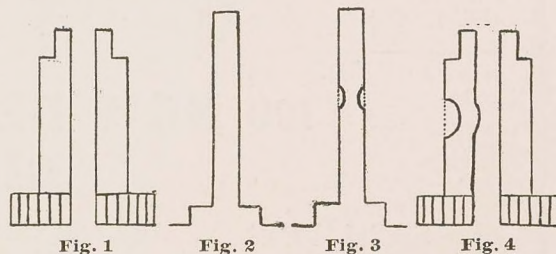


Fig. 1

Fig. 2

Fig. 3

Fig. 4

the top of the center post down to the center of the groove and mark this distance on the cannon pinion, then take a small, round file and file a groove on one side exactly the same distance down as on the center post, but be sure you do not file through—see Fig. 4. We now take a blunt center punch, and by placing a round broach or a piece of brass wire that does not fit tight in the cannon pinion, we give it a fair tap with the hammer to bulge it in at that point when, if our measurements are correct and we place the cannon pinion on the center post, the small impression we made in the pinion will enter the groove in the center post, and the pinion cannot slide up when setting the hands. As stated above, all cannon pinions are held down on the same principle, even though of different shapes.

"Magnet."—I would like a little information on demagnetizing. Some time ago I was told by an electrician that he could demagnetize a watch by attaching a piece of twine to the bow, twist the twine, then hold over a dynamo and gradually draw the watch away while the twine was untwisting, causing the watch to revolve. Is there anything to this?—If the dynamo is of the alternating-current variety, the method is practical; in fact, the employing of twine is not even necessary. All that needs be done is to hold the watch near one of the poles and gradually draw it away. Be very careful, however, not to touch any part of the dynamo, or you will get the full strength of the current. This matter of demagnetization has been considered fully and at length in this department, and we would suggest that those of our readers who are interested read the replies to previous questions of a similar character. Such replies can be readily located with the aid of the index that accompanies each December KEYSTONE.

"Oiler."—(1) How much oil should be used on a balance pivot?—It is almost impossible to say just how much oil to put on balance pivots, but the proper way to oil the balance of a watch after it has been cleaned is to put a little oil on the end stone before putting it in place, then just a little oil in the cup of the jewel. The object of putting oil on the end stone is, it frequently happens if the oil is put in the cup of the hole jewel only it does not run back to the end stone, causing the pivot to run dry on it.

(2) Please describe a satisfactory watch oiler.—Most every watchmaker has what he terms a pet watch oiler, but a satisfactory oiler can be made from a piece of gold wire about the thickness of a No. 6 needle by flattening the end with a hammer and then dressing it up until it will take just enough oil to do for a pivot of an o size movement, the end of the oiler to be shaped something like a pivot drill. This, placed in a suitable handle, makes an ideal oiler.

SASH PINS, WAIST SETS, CUFF PINS, BROOCHES and BUCKLES, in up-to-date finishes.
BRACELETS and BEAD NECKS (Sterling and Gold Plate).
Full line BACK and SIDE COMBS, LORGNETTE CHAINS, CROSSES, ETC.
CIGARETTE and CARD CASES, MATCH BOXES, PURSES and COIN HOLDERS.
SOUVENIR SPOONS in Tea and Coffee Sizes.

New York Representative:
C. VAN NESS, 11 Maiden Lane.

Chicago Representative :
C. H. BRADY, 88 Monroe St.

San Francisco Representative:
H. C. VAN NESS, 115 Kearny St.

NORTH ATTLEBORO, MASS.

We will forward it for the asking, prepaid. Such pins as you see illustrated can be supplied for any class, club or society, in any one or two colors of enamel, large or small quantities at prices quoted, substituting your letters for those shown in cut. Estimates cheerfully furnished where more lettering is desired.

| | |
|----------------------------|-------------------|
| Silver plate, | \$.75 per dozen. |
| Sterling silver, | 1.88 " " |
| Gold plate, | 2.25 " " |
| Solid gold, | 11.25 " " |

BASTIAN BROS..

of Repairing New England Watches for the trade. Our workmen are experts from the factory and we do this work promptly and at reasonable prices. Send us your orders for New England material.

**Southwestern Selling Agents
for the New England Watch Co.**

614 Locust Street, ST. LOUIS, MO.

The Show Window

DECORATION DAY brings one of the most notable opportunities of the year for the execution of patriotic window displays. The occasion calls up such a flood of patriotic memories that its spirit must be interpreted by a design having for its dominant note peace, triumph or solemnity, or the three combined. Sentiment undoubtedly rules the greater proportion of human action, but its influence varies with the character of the sentiment aroused. Taking the necessarily-practical view of the occasion, it may be remarked that liberal purchasers are scarcely ever found among those who mourn. The opposite feelings will, in many instances, induce liberal buying. And in decorating windows for Memorial Day these phases of the subject should be kept vividly in mind. It is manifestly unwise to arouse sentiments in the minds of possible customers which will have a tendency to decrease buying. It is sound business policy to create sentiments the tendency of which will have exactly the opposite effect.

The Civil War, the reconciliation of the blue and the gray, and such later events in United States history as the Spanish-American war, may be subjected to treatment on this occasion. Since our late wars there are more soldiers' and sailors' graves to decorate than ever before, and a new interest in Memorial Day has been aroused. Therefore, the wise merchant, who persistently caters to the moods and whims of the great public, will see that his show windows pay a fitting tribute to the occasion. To evolve a tableau or decorative scheme appropriately symbolical of any of these episodes, will not entail much expenditure, and anyway, if the effort is even partially successful, the advertising resulting from it will undoubtedly more than compensate for the outlay. The name Memorial Day instantaneously evokes ideas of flags, shields, portraits, busts, arms, cannon, military regimentals, relics and other associations of the famous war.

A decorative scheme may be worked out which has for its nucleus a slab in the center of the background, with the words "In Memoriam" on it in scroll. This slab may be draped with the national colors, so arranged that the inscription can be easily read. On the floor of the window, in front of this, a sheathed sword and a musket may be laid across each other. A wax figure of a female representing "Columbia," suitably draped and girdled, and with the usual diadem on her brow, may be placed at one side in the act of laying a wreath upon the slab. To convey the idea of peace and restored friendship between the North and South, a stuffed or imitation dove may be suspended from the window ceiling. To aid in the interpretation a sign may be contrived, bearing the words "Peace to the Dead and the Living."

If an electric sign cannot be devised, the legend may be lettered on a handsome card draped in blue and gray. The goods may be arranged in the foreground of the window to suit the taste of the decorator. The attractiveness of the display can be considerably heightened by draping the top and sides of the window with flags held in the center by black ribbons or tassels.

Handsome Displays by Jewelers

The display shown in the accompanying illustration is one that was designed and executed for Harrison & Co., of Sault Sainte Marie, Mich., by William Feltham, of that firm. The goods exhibited are principally chains. The background of the display is composed of three arches, the main one of which has the map of North America outlined on it. On one side of this stands the Goddess of Liberty, holding in one hand an illuminated representation of a chain factory, while the other points to the chains in the window. The three arches are supported by columns of purple, surmounted by

white, and these pillars are wound with chains. The terrace in front of the arches is also decorated with the chains, watches, statuary, articles of bric-a-brac, silverware and cut glass being likewise suitably shown. In conjunction with this display an elaborate advertisement was run in the press, in which inspection of the window by the public was invited. Additional publicity was given to it through the fact that this advertisement embodied an offer of prizes to the pupils in the sixth, seventh and eighth grades of the public schools for the best essays describing the display. The interest aroused was further stimulated by the subsequent exhibition of the different prizes in the window.

One of the prettiest ideas for an Easter window display that has come under our notice was that executed for F. W. Badger, of Beaumont, Texas, by J. R. Segall, optometrist with that firm. The color scheme in this display was pink and green and an arch bearing the electrically illuminated sign "Badger" was supported by capped square pillars. The letters of this word were made to appear in succession and to remain illuminated until the word was completed. Then each letter was separately flashed out and the process repeated. Underneath the centerpiece, which was a hanging basket of flowers, was a turning table and this was connected with the pulley that drove the contact breaker. Flowers were tastefully arranged throughout the window to heighten the seasonable effect. The entire display and the fixtures for the electrical apparatus were constructed from old boxes and

cardboard and apart from the lamps and sockets the expense incurred was infinitesimal. The motor used was one by which the fans are worked in the summer. In the execution of a display such as this, the fundamental factors are a knowledge of electricity and a moderate degree of mechanical skill.

Another very handsome window was designed by S. Prager, of Terre Haute, Ind. It was in the form of three arches with electric lights. Over the outside arches were crosses, also dotted with electric lights, and in the center arch was an Easter bell, the tongue of which was an incandescent bulb. A

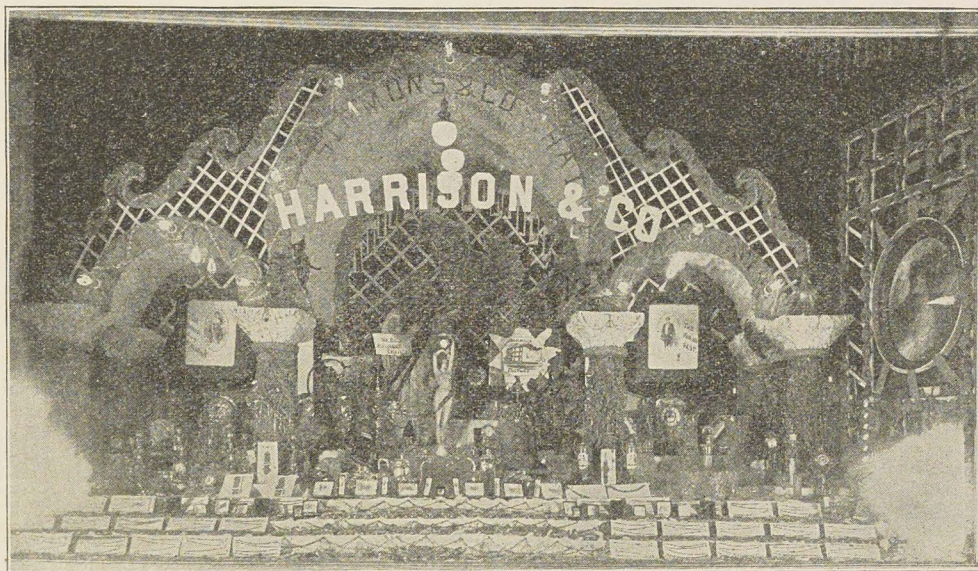
handsome display of statuary, lamps, glassware, jewelry, clocks and watches was shown, and attracted much attention. Mr. Prager's store is noted for its handsome window displays.

Many Differing Ideas

Every window trimmer has distinct and separate ideas from every other, even in the same line of displays. For instance, a jeweler, who for years has been quoted for his good taste and judgment, said to us that white was the only color that should be used for backgrounds to show jewelry and silver, especially the latter. He said: "You take a cheap article of silver, put it on a dark background and it is looks still cheaper, where, if you take the same article and give it a soft white background, its value appears advanced 100 per cent., while a good article is absolutely perfect with such a setting."

This jeweler also suggested for window displays in the spring, tea sets, knives, forks and spoons—in fact, everything needed by new housekeepers. He said a good uniform window show could be made up of cake baskets, bakers, butter dishes, etc., or of any pieces uniform in shape and size. He does not think solid displays are altogether the best, because, he says, a person naturally concludes the store carries a complete line of any article shown in the window.

An original window display of washing utensils was made by a Boston store a few weeks ago. A large wash tub, made to represent a clock, was the principal attraction. The tub was placed at the top of the window, with its bottom toward the front. Around the edge clothes-pins were arranged to represent Roman numerals. Two sticks with small brushes at either end served for hands, and the pendulum was a washboard, suspended on a mop handle, which swung in front of a large ironing board. A small motor, with a number of speed reducers, kept the clock going with moderate accuracy. The remainder of the window was filled with wash-day goods.



Handsome Display of Harrison & Co., Sault Ste. Marie, Mich.

READ THIS!

Millerton, N. Y., March 29, 1904.

MY DEAR PROFESSOR:

I suppose after a wait of three or four years you may think it strange to hear from me. I saw your ad. in THE KEYSTONE, "Ten Years of Success," and I wish to write and congratulate you and wish you many years of success. I am still in the same place. Have done all kinds of work since leaving you and wish to say that my stay with you was very satisfactory indeed to me and would not have missed it for twice, yes, three times what it cost me. Remember me kindly to anyone I know and again congratulating you, I beg to remain,

Yours most respectfully,

CHAS. A. TOWNSEND.

This is the kind of a college you want to attend, and here is a sample of one of our student's work, Mr. M. M. McIntire, of Mt. Vernon, Ohio. He had no experience whatever before attending our college and engraved the plate below while taking a combined course in Watchmaking, Engraving and Optics.



We can teach you to do as well, and it won't take long. The summer months is a good time to attend—we are not so busy and do not have any vacations.

A thorough, practical knowledge of Watchmaking, Engraving and Optics is what we can give you, for we are expert teachers. Our Prospectus will give you full information. Send for it to-day.

Address

**The Philadelphia College
of Horology,**

Broad and Somerset Sts., PHILADELPHIA, PA.

F. W. SCHULER, Principal.



IT DOES NOT PAY TO DO YOUR
OWN WORK.

Watch Repairing for the Trade.

**THE BEST EQUIPPED REPAIR
SHOP IN THE COUNTRY.**

Regulating and Adjusting a Specialty.

Good Work Best Material Used.
Promptly Done Reference Given.
At Fair Prices. Estimates Furnished.

WM. N. BRUNNER,

711 Sansom Street, Philadelphia.

Bell Telephone. Second Floor.
ESTABLISHED 1890.

C. T. CUNY AND COMPANY,

78-80 STATE ST., CHICAGO, ILL.,

**MANUFACTURING JEWELERS
AND ENGRAVERS.**

REASONS why we
are the **BEST FIRM** to do
the **Country Jewelers' Work.**

Because—All jobs go back the
same day.

Because—Every job is done right.

Because—Every price is low.

Because—Every job is guaranteed.

New Polishing and Grinding Machine

This machine is designed especially to meet the demands of the jeweler. It will carry emery and buffing wheels up to 6 inches in diameter, and with perfect ease speeds to 2500 revolutions a minute.

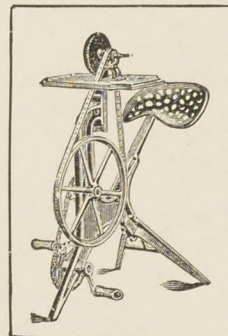
Economy of space reduced to the minimum.

We also make a line of Foot-Power Lathes for heavy jewelry work.

SEND FOR CATALOGUE.

W. F. & John Barnes Co.

660 Ruby St., ROCKFORD, ILL.



Established 58 Years.

James H. Dederick's Sons, ASSAYERS AND BULLION DEALERS.

ALL QUALITIES OF GOLD AND SILVER, in Plate, Square and Round Wire,
Rolled to Any Gauge.

BUYERS OF ALL QUALITIES OF GOLD AND SILVER SOLDER.
OLD GOLD AND SILVER.

16 Maiden Lane, NEW YORK.

Are you looking for a firm that will do your **Repairs**
and your **Special Order Work**

WE ARE THE PEOPLE. Try us.

QUICK and at RIGHT PRICES?

Cohen, Nickell & Weinman, MANUFACTURING JEWELERS
and DIAMOND SETTERS
Exclusively for the Trade

Write for our
New Price-List on Repairs.

167 Dearborn Street, CHICAGO.

Instrument for Showing Standard Time all over the World at any Hour

THIS invention, says the *British Horological Journal*, relates to an improved method of and instrument for comparing local clock-time anywhere with meantime at Greenwich or any other place, and has for its object, among other purposes, to facilitate comparison of local-time at any place, as shown by its clocks and watches, with clock-time all around the world by means of an adjustable attachment to any timekeeper, such as ordinary clocks and watches. Before describing the method and instrument constituting this invention, I will describe the fundamental principles upon which the invention is based:

As is well known, "Standard Time," referred to the meridian of Greenwich, has been adopted for railway and other purposes in the countries mentioned in the following table—as copied from Whitaker's Almanac for 1902:

| Place | Central Meridian | Fast or Slow of Greenwich |
|-------------------------|------------------|---------------------------|
| Greenwich | 0° | 0 h. |
| Mid-Europe | 15 E. | 1 h. fast. |
| Cape Colony | 22½ E. | 1½ h. fast. |
| Natal | 30 E. | 2 h. fast. |
| America— | | |
| Inter-colonial | 60 W. | 4 h. slow. |
| Eastern | 75 W. | 5 h. slow. |
| Central | 90 W. | 6 h. slow. |
| Mountain | 105 W. | 7 h. slow. |
| Pacific | 120 W. | 8 h. slow. |
| Australia and Japan— | | |
| West Australia | 120 E. | 8 h. fast. |
| Japan | 135 E. | 9 h. fast. |
| South Australia | 142½ E. | 9½ h. fast. |
| Victoria | | |
| New South Wales | 150 E. | 10 h. fast. |
| Queensland and Tasmania | | |
| New Zealand | 172½ E. | 11½ h. fast. |

"The globe is supposed to be divided into zones extending 7° 30' on each side of the Central-Meridians, and the local-meantime is used for all places within that zone."

Mode of Procedure In considering how to mechanically avail myself of these data for the purposes as before mentioned, I proceed as follows:—

A disk or circle—hereinafter called the circle-of-zones, or longitude-plate—is graduated round its upper-surface circumference into twenty-four equal divisions, each of which shall represent one of the before-named twenty-four hour zones of 15° each; each separate degree being also marked when the size of the longitude-plate is large enough to permit of this being done.

But inasmuch as I seek to apply this invention also to ordinary clocks and watches which count the hours from 0 h. to XII h., it is necessary to adapt the graduated divisions of the longitude-plate so as to meet this exigency.

I will, therefore, proceed first to describe the circle-of-zones, or longitude-plate, applicable to the twelve-hour dials of clocks and watches; and afterwards the same as applicable to such dials as count the hours from 0 h. to 24 h.

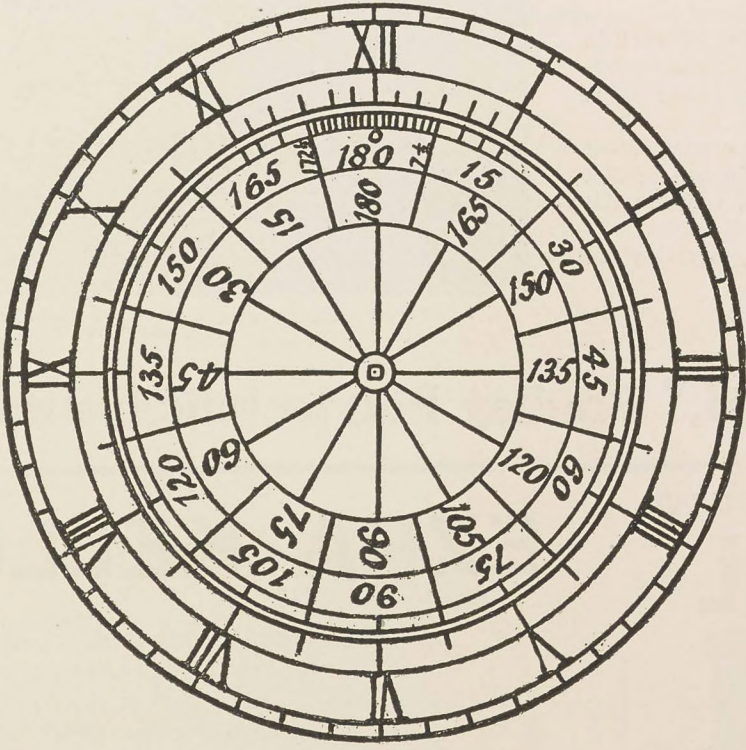
For use with the clocks and watches having the ordinary twelve-hour dials I graduate the whole circumference of the longitude-plate from 0° all round (to the right) to 180°, and these into twelve equal divisions of 15° each—instead of twenty-four, as before mentioned.

I will describe the accompanying drawing.

The before-named adjustable longitude-plate, or circle-of-zones, is represented inside the double or thick circle to the center, the fixed clock or watch-dial of XII hours being represented outside the said double or thick circle.

At any convenient distance below these short outer graduations I describe a concentric circle; and inside this a second concentric circle at a corresponding distance or width apart as the first circle is from the outer circumference.

Across the spaces confined between these circles and the circumference I draw dividing lines—directed to the center—being only as long as the two spaces are wide. The first of these dividing lines I draw at 7½°, to the right of 0°, and repeat them thereafter 15° apart all round, which causes the twelfth and last to be at 172½° to the left of 0°. The twenty-four equal spaces thus obtained—twelve of them being outside, and twelve



inside, of the before-named first concentric circle—represent the before-described twenty-four zones of one hour each.

When the longitude-plate so prepared is attached centrally to the hour-hand of a clock, or watch, so as to revolve with it, these radial dividing lines would at noon, or any full hour, correspond with the half-hours, or midway between each of the figures on a twelve-hour dial.

The inner twelve zones are subdivided and marked and used—in all respects but one—in the same manner as the outer twelve zones. This difference I will now describe:

The outer twelve zones are graduated and marked consecutively from 0° to 180° with plain figures—preferably indicating every multiple of 15°—(to the right about) and are so used and observed to indicate the time at all longitudes east, or fast of the observer anywhere.

The inner twelve zones are graduated and marked consecutively—in the same way—from the same 0° to the same 180° (to the left about), and are so used and observed to indicate the time at all longitudes west, or slow of the observer anywhere.

Further, I consider it would be useful and convenient to indicate on the longitude-plate the position of the "central-meridians" by lines radiating

from the center and terminating at the before-mentioned second concentric circle, intermediate between each of the before-described dividing lines.

A Simple Method

For dials that are figured to count the hours consecutively from 0 h. to 24 h., the graduating and dividing of the longitude-plate round its circumference only from 0 h. to 24 h. is much more simple. In this case the graduations are made from 0° to 180° half way round to the right; and from the same 0° to the same 180°, the other half way round to the left.

At a convenient distance below these circumferential graduations it is preferable to draw a concentric circle, the space between which and the circumference is divided into twenty-four zones—twelve to the right of 0° commencing at 7½°—and twelve to the left of 0°, both meeting at 180°, on each side.

As in the preceding case, of dials counting from 0 h. to XII h., these zones are limited to 15° each, and the dividing lines commence at 7½° on each side of 0°, or the prime-meridian of Greenwich: those to the right being used and observed half way round to indicate the time at all longitudes east, or fast of the observer anywhere; while those degrees and zones to the left indicate on the fixed dial of the timekeeper adjacent to them the time at all longitudes west, or slow of the observer anywhere.

The longitude-plate, or circle-of-zones, suitably adapted to any given timekeeper, having been prepared substantially as described, and centrally pierced to fit the eye-end, hollow-shaft or boss of the hour-hand tightly, so that it will revolve with it, but be readily adjustable to any given position, or alteration of position—just as the hour-hand itself revolves with the axle on which it fits—is so attached to and below the hour-hand as to move smoothly over the dial when carried round by the hour-hand.

Obviously the longitude-plate should not be so large as to cover any part of the hours marked on the clock or watch-dial.

And it is equally obvious that instead of a longitude-plate centrally attached to the boss of the hour-hand as before described, such a circle-of-zones circumferentially marked substantially as described—omitting the central part of the longitude-plate below or within the before-named second concentric circle—may be so made and fitted as to revolve, adjustable by a screw to the hour-hand, within the groove on, or level with, or below, the level of the clock or watch-face, either outside over—or inside under—the hours figured on the fixed dial, so as to interfere as little as possible with second-hands and winding places where such exist, and where such modifications of the invention are desirable and convenient, without departing from the spirit of the inventions.

Having adjusted the hour-hand—in any convenient manner so that it will not slip and be easily readjustable—centrally to any desired zone, or degree of longitude, corresponding to the locality of the observer east or west of Greenwich, replace the hands in the usual way. Independent of the longitude-plate, or circle-of-zones, the hands will indicate the local time. The corresponding time at any other place in the world will be indicated on the dial adjacent to the zone, or degree, of its longitude. Wherever the central-meridian of a zone is divisible by 15 the minutes are the same as at the place of observation, when its longitude is also a multiple of 15. But when the central-meridian is not a multiple of 15, such as at Cape Colony and New Zealand, the minute-hand is either a half-hour too fast, or too slow—or more or less according to intervening longitudes.

It only now remains to say that the longitude-plate, or circle-of-zones, may be made of any suitable material, and of any size—for use on the dials of watches, or house or tower-clocks, or as office or school-charts.

But it is obvious that the principle and use of the invention is applicable for all places, whether they have adopted Greenwich time or not.

THE ONLY WAY.

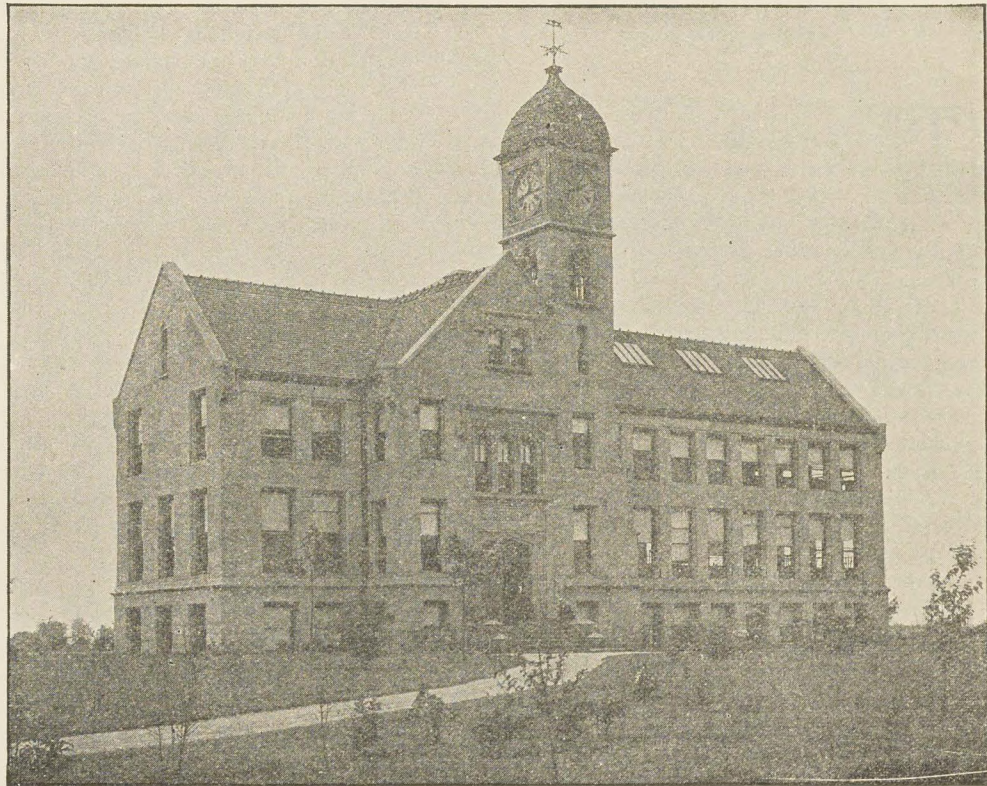
Many first-class workmen throughout the country recommend a young man to the horological school for his training of head and hand when he has decided to take up watch work and its kindred trades. This is proven by the fact that seventy-five per cent. of our students have been recommended by the leading jewelers and watchmakers of their community, and twenty-five per cent. are the sons of parties who are in the jewelry business, and in many cases represent the largest establishments in their section. They realize that they will get many times more attention in a thoroughly-equipped, well-established watch school, where there is a full corps of competent instructors, than they can possibly receive as apprentices in a store where the watchmaker is too busy to take time for the proper instruction, or the jeweler is rushed without being plied with questions from a novice, and the engraver has something else to do when not at work on his own line, waiting on customers or other work about the store which demands his attention.

At Bradley the work has been systematized so that a student can get the **greatest possible amount of work in the shortest time**, and the grade of his work is many points ahead of the average apprentice who has put in five or six times as much work and time in the store.

Bradley Horological Department is no experiment—it is the oldest school in the country, the largest, the best equipped as regards tools and instructors, with financial backing which guarantees everything as represented.

You can get watch work, jewelry work, engraving and optics.

Send for catalogue to



The Largest Building in the World Used Exclusively for the Purpose of Instruction in Watch Work, Jewelry and Engraving.

"Horological," Bradley Polytechnic Institute, Peoria, Ill.



THE STANDARD
OF THE
WORLD
FOR
EIGHTY YEARS.

WATCH and CLOCK

OIL



EZRA KELLEY'S OIL

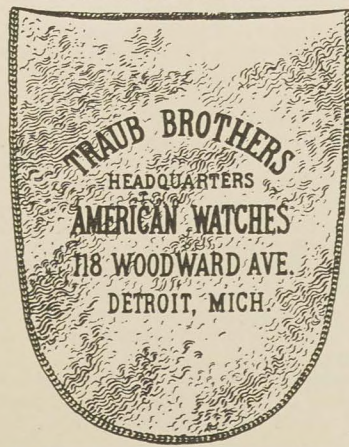
for **Watches, Clocks and Chronometers** has been used by the master horologists of the world for nearly a century. The best workmen use no other. If **you** pride yourself on your repair work or the timepieces you sell, tie to it. It's best for the timepieces, for your reputation and for your business.

Henry Ginnel & Co.,

Agents for the United States, Canada and South America,
31 Maiden Lane, N. Y.

Grimshaw & Baxter,

Sole European Agents,
35 Goswell Street, London.



The Best Offer on Watch Bags Ever Made.

Through our "MAIL ORDER DEPARTMENT," we offer you **Warranted Non-Tarnishable Oil Tanned Chamois WATCH BAGS**, all sizes, from 00 to 20, inclusive, at **\$1.25** per gross. Put up in any assortment of sizes desired. All our goods are neatly sewed on French overstich machines in assorted colored stitching.

The same bags neatly printed, at **\$1.50** per gross. Printed on both sides, **\$1.75** per gross. Add **10c.** (ten cents) per gross extra for orders to be mailed, and always send remittance with order.

THE RICKETTS CHAMOIS NOVELTY CO.

Largest Oil Tan Chamois Manufacturers in the World,

Established 1900.

JOHNSTOWN, N. Y.

Among Jewelry Advertisers

THE effectiveness of advertising is determined by quantity and quality. The first is a matter of cash and opportunity, the second a matter of brains and judgment. How to cultivate quality is an important question with all dealers who seek business through the medium of publicity. It can be safely laid down as an axiom that common sense is the first essential to quality in an advertisement. It is the safest foundation for an appeal to the favorable consideration of the public at large. It is true that advertisements

Solid
Silver
Table-
Ware

DURING the past year silver bullion has been steadily advancing in price, and to-day silver bars are worth 15 per cent. more than two years ago.

THIS means but one thing—an advance in the price of sterling silver table wares.

WE anticipated this increase and doubled our purchases.

OUR stock of desirable patterns in spoons, forks, knives and all table silver is larger and more complete than ever.

WE will continue selling these articles at the old prices.

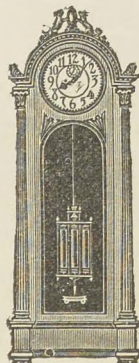
Montgomery
Bros.,
Third and
Spring Sts.

in which it is lacking may bring returns, but these returns are merely spasmodic, and of a chance nature that indicates how much more might be accomplished by the adoption of saner methods.

The surest way to write a common-sense advertisement is to tell in plain, straightforward English something about your goods that will appeal to the interest, appreciation or economic spirit of possible buyers with the object of inducing them to visit your store. On a groundwork such as this you can proceed to prune, alter, elaborate or embellish so as to increase the power of im-

CLOCK PRICES
CUT IN HALF

We have gone through our stock of wood clocks in our first floor show-room and chipped a big piece off the price of each. We have carefully overhauled them and repolished the cases, so that every one will



be a satisfactory purchase. We have no space in our cases to show them—that is the only reason we have for cutting the prices in two, and they should quickly find new homes to regulate.

STEWART, DAWSON & CO.
SYDNEY, N. S. W.

HANDSOME
HOME CLOCKS

The CLOCKS in a house are very potent in making the first impression when one enters. Think of this when you go calling again, and notice the CLOCKS in the houses you enter. You will be surprised how much they tell of the character of their owners. We want you to get interested in CLOCKS. They are very attractive and interesting in many ways, both useful and ornamental. We are clock wise and can tell you as well as show you all about them.

L. B. Moore,
Jeweler.

pression. The body of the advertisement should however be a solid business fact, and all other features should unite in driving that fact home to the reader. Advertisements are not perused as eagerly as is news matter, hence the necessity for attractiveness of form and impressiveness of substance in every announcement designed to catch business. Display, the medium by which attention is arrested, is solely a matter of good taste and clever type manipulation. This lies between the publisher and the advertiser, and is governed by varying conditions. Naturally the dealer who pays

It's a matter of taste with a man whether he prefers a blonde or a brunette for his wife, as it is also a matter of taste whether he chooses a Diamond, a Pearl, a Sapphire or an Opal to present his fiancée as an Engagement Ring.

Engagement Rings

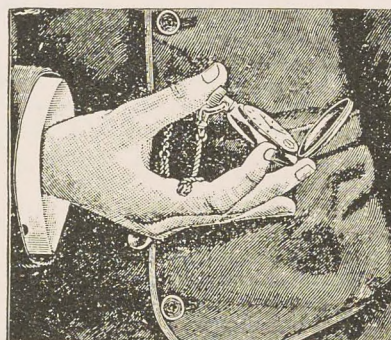
We have all kinds of precious stones, set in many beautiful designs and combinations to suit all tastes, all fancies and all purses, that are gems of the jeweler's and goldsmith's art.

FRANK V. KENT & CO.

his advertising bills promptly is the one most likely to get consideration in this respect.

With regard to the wording of an advertisement, it seems somewhat futile to give specific directions. They may not be equally practicable in all cases, and anyway every man has his own point of view and his own way of expressing it. But there are certain general principles of expression which no one who spends money on advertising can very well afford to ignore. In the first place the meaning which it is desired to convey must be made so obvious that it will require no

effort of the reader's understanding to comprehend it. Unless he is especially interested in the thing advertised, the reader will not rarely exert his reasoning faculties to interpret any involved or ambiguous statement made about it. Thus the necessity for clearness, unmistakable clearness and force becomes apparent. These are the first essentials of full, free and satisfactory expression and the surest way to conserve them is to use short sentences. There is no doubt that the colloquial style is the most catchy, but great care must be exercised lest it degenerate into the slang of the street-corner. An informal, face to face

RAILROAD
WATCHES

We make a specialty of railroad watches. He uses a special movement containing 21 jewels, one that runs with wonderful accuracy and is built to stand the wear and tear, smash and slam of the railroad business.

BROWN,
Asylum Street.

talk is a more effective means of creating business than is a personal letter; in like manner the chatty, colloquial advertisement is bound to win more interest and have a more desirable effect upon the reader than the highly orthodox, stilted and round-about form. Every retail advertiser should aim to cultivate the shorter personal style which has not only an arresting quality but is also more easily remembered. It will occur to the reader and reawaken his attention hours after he has read it—while the rather heavy, long-paragraphed account may not even be read, or will be merely skimmed over to be suddenly dismissed thereafter.

THAT WATCH OF
YOURS

has needs just as much as you have. You need cleaning and fixing up once in a while, and so does your watch. About once a year the proposition of cleaning and oiling that watch comes up. It's then that you want to think of me. The treatment accorded a watch is just the same whether it is the best or the poorest make—that is, the best attention is given it. WADE is an expert at handling watches. Let him fix up your timepiece.

WADE, The Watchman,
(You can watch me through the window)
Main Street.

NEW SAMPLE LINES NOW READY

GOLD

LOCKET CHAINS
VEST CHAINS
LORGNETTES
SCARF PINS
BRACELETS
BROOCHES
DICKENS
LOCKETS

— SALESROOMS —

9 MAIDEN LANE,
NEW YORK.

131 WABASH AVE.,
CHICAGO, ILL.

115 KEARNEY ST.,
SAN FRANCISCO, CAL.

PROVIDENCE STOCK CO.
100 STEWART
PROVIDENCE

FOBS
CHARMS
DICKENS
BRACELETS
VEST CHAINS
NECK CHAINS
LORGNETTES

$\frac{1}{10}$

GOLD FILLED
SOLDERED WITH GOLD SOLDER

BRAND NEW IDEAS
HANDSOME, CATCHY SALEABLE, DESIGNS.



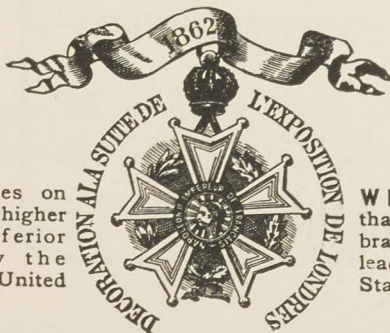
The **W B & C** Glasses WATCH GLASSES

are known to be the BEST

They are guaranteed to be strictly first quality glass without bubbles or scratches.



The only medal at the Chicago World's Fair for watch glasses was awarded to the W B & C brand.



The prices on
are not higher
much inferior
sold by the
of the United
States as fol-
lows:

| | | |
|---------------------------------------|-----------|--------|
| Genevas | per gross | \$2.75 |
| Mi-Concaves | " " | 3.25 |
| Extra thick Mi-Concaves | " " | 6.75 |
| Patent Genevas | " " | 5.50 |
| Extra thick Parallels | " " | 5.50 |
| Flat Concaves, thick | " " | 7.50 |
| Lentilles for Bascine Cases | " " | 10.50 |

W B & C glasses
than other and
brands, and are
leading jobbers
States as fol-
lows:



The only medal at the Paris Exposition of 1900 for watch glasses was awarded to the W B & C brand.

Over 25 Silver and Gold Medals awarded to the W B & C Glasses at the Different Exhibitions of the World Since 1826.

Everybody knows that the W B & C glasses HAVE BEEN, ARE, AND WILL ALWAYS BE the leading brand of glasses in the market. Their finish, clearness, flexibility and correctness of size make them so that the leading jobbers in the United States will use no others at any price. Four-fifths of the case manufacturers are using them on account of their accuracy and perfect roundness. They used to buy a cheaper grade of goods, but soon found out the wisdom of the old proverb, "The Best is the Cheapest at the End."

WATCHMAKERS!! If you wish to save time and money and give good satisfaction to your customers (if you are not using them), try the W B & C and don't be deceived by bluffing and humbugging advertisements, showing a lot of nonsensical figures. The W B & C glasses are in existence over sixty years, and during that time a great many brands have sprung up in one day, and never heard from afterwards. IT IS A GOOD AND RELIABLE GLASS YOU WANT, WHICH IS THE W B & C.

World-Famed Expert in Precious Stones

E. W. Streeter Retires from Business—His Remarkable Career and Experiences

FIVE operations on his eyes within the last three years have made imperative the retirement from business of Edwin W. Streeter, the famous London jeweler and expert in precious stones. Mr. Streeter's establishment in Bond Street is as well known as the bank, and sometimes nearly as valuable.

Beneath the shop is a capacious safe, which often contains as much as a million pounds' worth of valuables. It stands on a base of concrete to prevent tunneling, and is fitted with four steel doors, to disturb which means the ringing of alarm bells in all parts of the building. A guard of men sleep near it every night, and a powerful dog prowls round its iron walls.

Mr. Streeter has in his possession what he considers to be the finest diamond in the world. It was once the property of the Emperor of Delhi, and is valued at £14,000. The largest diamond he had ever seen during his career weighed about one thousand carats, and is owned by a syndicate of dealers. Its value complete would be about \$25,000,000, but it is now being cut up.

Once Owned Site of Kimberley

The son of Henry Russell, who was originally Mr. Streeter's partner, once owned the whole of the site of the present Kimberley diamond mines. After working it at considerable profit, Russell and his partner sold the ground for \$2500. It is now worth probably \$1,500,000,000. A small shanty which the miners had erected was sold separately for a few pounds. It was subsequently discovered that the mud with which its walls were plastered was literally full of diamonds in the rough.

Mr. Streeter also prided himself on having probably the finest collection of opals in the world. It is in the form of a necklace and pendant; the latter being a single stone $1\frac{1}{2}$ inches by 1 inch. The most remarkable point with reference to this unique collection is that it was cut from one block of solid opal. It is worth about \$9000.

It was Mr. Streeter who was instrumental in exposing the notorious Pinta, who claimed to have discovered the philosopher's stone. His method consisted in having a bag of gold dust concealed up his sleeve, from which, by an ingenious contrivance, he was able to squeeze the powdered metal unnoticed into the crucible. By this means he was able to melt a sovereign and produce three or four times its weight in metal.

In a recent interview Mr. Streeter said: "I was the first to open up the diamond mines of South Africa. At that time my business place was at Bevis Marks, and I had for a partner one Harry Emmanuel. The firm was known as Emmanuel Brothers, formerly Robert Streeter, jewelers to Queen Anne.

"We had in our office as clerk the late Cecil Rhodes, and it was our interest in South African mines that turned the attention of the empire-maker to that continent.

Rubies from Burma

"I also opened up the ruby mines of Burma. Soon after the taking of the place by the British, one of my sons, who was in Australia, wrote over to me expressing a wish to go to Burma, as he felt sure there were ruby mines there.

"An expedition was fitted out, headed by my son, and an adventurous journey was made. On the way \$2500 worth of silver was stolen, and there was nothing with which to pay the natives.

"In this enterprise I was associated with Lord Rothschild. When the company was floated, the crowd outside his lordship's premises was so great that he had to be assisted over the people's heads to gain admission. Applications were also being made at my private residence till the early hours of the morning.

"My latest expedition—my last expedition—is to Egypt, the Eastern desert, the vast tract of land between the Nile and the Red Sea, the richest territory in all the world. I have been engaged upon this for about twenty years, but at last it is in working order.

"I first obtained a clue to it from a gentleman named Floyer, head of the Egyptian telegraph department, and altogether I have sent out three expeditions. The first was in charge of Seton Kerr, the second headed by Allen Foster, and the third by John Jane. We found emeralds in abundance, gold and copper, iron and other materials."

Mr. Streeter was asked to tell some of his jewel stories, and he readily responded:

"During the Indian mutiny," he said, "at the taking of Delhi the royal palace was sacked, and some very valuable jewelry was secured. Major Probyn got possession of a string of fine pearls, and brought them to me for valuation. I valued them at \$150,000. I believe they were used for the purpose of obtaining remounts, horses being scarce in that campaign, as they were in South Africa.

The Delhi Diamond

"But the strangest story is that in connection with the Delhi diamond. This got into the possession of one of the hussars, but the commanding officer forbade him to retain it, as he would have nothing to do with loot. The hussar, however, was not so easily to be deprived of so precious a gem, and he hit upon a very simple, yet effective expedient to retain possession of it. He embedded it in a pill, which he gave his horse, and so got away with it. Later he complained that his horse was suffering from some serious malady, and was unfit for service, directing that it should be shot. This was done, the hussar subsequently holding a secret post-mortem on his dead steed, and removing the diamond. Thus the stone reached this country, and was purchased by the Duke of Brunswick, and from his grace I acquired it.

"Another curious little story," continued Mr. Streeter, "is that connected with the opal. Some years ago one of my sons, who was located in Australia, was bidding adieu to a chum of his, who was going some distance up-country. The latter was mounted on a horse, and as he rode away my son picked up a stone and playfully threw it after him. It struck the metal part of the saddle and broke in two. Upon picking it up my son was astonished to see right in the very heart of it a beautiful opal.

"This was the first discovery that opals might be found in ironstones. It was an ironstone he had picked up. But this story has a tragic sequel. Soon after, the young fellow who rode away, came into a big fortune; three months later he, while out hunting, was thrown from his horse and had his neck broken."

Opals in Ironstones

Here Mr. Streeter blew through the speaking-tube and directed that certain pieces of ironstone should be brought to him. This was done—a large piece and a small piece. The latter was cut through and polished; right in the

very core of it was a beautiful scintillating opal. This was the stone thrown by Mr. Streeter's son.

The other, the large stone, contained a mass of opal. Tapping it, Mr. Streeter significantly remarked: "By cutting this in two I may find a big opal in the center—you never know.

"But there," continued Mr. Streeter, "I could tell you a great deal more than you can print. The story of my activity is nearly told; past three-score years and ten, with failing sight, I have written my last book, embarked upon my last expedition."

Mr. Streeter, whose retirement must be a severe loss to the industry in which he has gained fame if not fortune, is a gold medalist of the Royal Order of Frederick and the holder of a gold medal from the King of the Belgians.

He has written several notable books on precious stones and pearling, including "The Great Diamonds of the World," "Pearls and Pearling Life," and "Precious Stones and Gems."

One of his extensive enterprises was that in connection with pearling, which he subsequently handed over to one of his sons.

Largest Diamond to be Cut

In jewelers' circles great interest has been awakened by the announcement that cutting operations have been commenced on the great Jagersfontein Excelsior, the largest and finest diamond in the world. The stone was held for ten years before its owner could make satisfactory arrangements for its cutting, which has now been undertaken by a firm in Amsterdam, Holland. It was transported from London to Amsterdam under special protection, and a carpeted room, with a specially made safe, has been provided for its care during the progress of cutting and polishing. The responsibility of handling and guarding so precious a stone may be gathered from the fact that its value may be almost anything. When discovered it was estimated to be worth \$1,000,000, but in its finished state it will command a fabulous price.

The story of the discovery of this wonderful gem is of no little interest. It was found on June 30, 1893, at Jagersfontein, in the Orange Free State, South Africa. The stone was picked up by a native while he was loading a truck, and although a white overseer was standing near him, he managed to secrete it and keep it on his person for some time. In this case, however, it did not appear that he proposed stealing the gem, but only wished to deliver it personally to the manager. This he did, and as a bonus he received \$750 and a horse, saddle and bridle.

The diamond weighed in the rough exactly 917 $\frac{3}{4}$ carats, or about 7 $\frac{1}{3}$ ounces avoirdupois. It is of a beautiful bluish white color, and shaped like the broken-off end of an icicle. The diamondiferous monster measures three inches in length, one and one-half inches in thickness, two and one-half inches in greatest breadth, and one and one-third inches in least breadth. The Excelsior has now been broken into sixteen pieces, the three largest of which are 158, 147 and 130 carats, respectively. These individual gems, in themselves of extraordinary size, will be, when fully cut and polished, among the finest in the world, and the value of the original stone will thus be multiplied.

"For goodness sake do not scratch my name off your list. I would be like a fish out of water without The Keystone."—Geo. W. Hess, Bloomsburg, Pa.

STAND BY THOSE WHO STAND BY YOU

We are making and **SELLING** carloads of
Finest Silverware.

Why? Because quality and prices are right and we don't
sell department stores or price-cutters.

ROCKFORD SILVER PLATE CO.
Rockford, Ill.



A NEW SAFETY CATCH MADE IN TWO SIZES. Small size the ideal Catch for badge work

(PATENT APPLIED FOR.)

STRONGEST, SIMPLEST, BEST SAFETY CATCH

on the market. Consisting of two parts, including spring, which WILL NOT WEAR OUT.

EXACT CUT OF LARGE SIZE.



OPEN.



CLOSED.

ENLARGED.



OPEN.

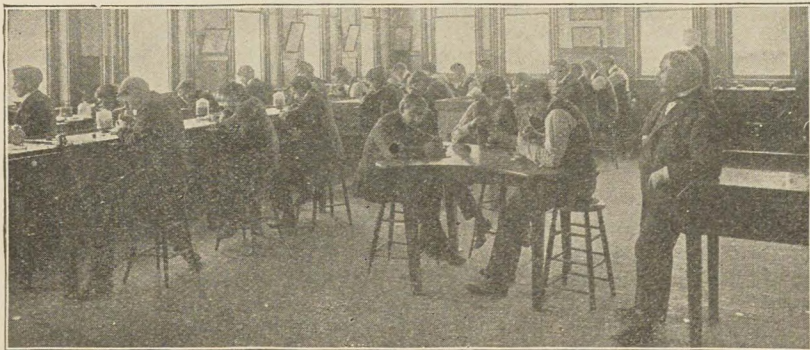


CLOSED.

BLANCARD & CO., 96, 98, 100 Maiden Lane,
NEW YORK,

Manufacturers of

Settings, Pin Stems, Ball Joints, Catches, Screw Backs, Etc., in Gold and Silver.



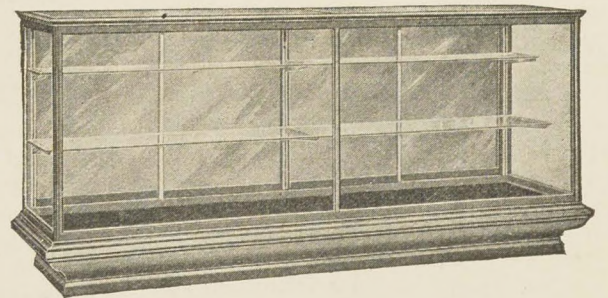
Partial View of the Main Room.

WILL YOU VISIT THE WORLD'S FAIR?

If so, pay us a visit, and we will show you how we are teaching our students to become successful Watchmakers. Our mode of instructing is a system original with us. It comprises science, accuracy, a saving of time and money to the students.

Results are: Efficient mechanics, good positions, greater pay. Our course is made so comprehensive by expert artisans as instructors that any live young man can thoroughly master it in from 6 to 12 months' time. Write for our new Catalogue.

ST. LOUIS WATCHMAKING SCHOOL, 5815 Easton Ave., ST. LOUIS, MO.



FREIGHT SAVING

Silent Salesman Show Cases

For forty years we have made the **strongest and most artistic show cases** on this continent. We have shipped them everywhere, buyers not hesitating to pay high cost of freight from our factory to distant points of destination, the greater value of "**Silent Salesman**" over other makes being considered full return for the money invested. In order, however, to meet the wishes of many others who would buy of us were the freight obstacle removed, we are now making a handsome **Knock Down** show case which is in all respects the same as our regular line and which makes an actual saving in freight of from 60 to 75 per cent.; no trouble to set them up, and, when set up, their rigidity is perfect.

"**Silent Salesman**" Show Cases are made in all shapes and sizes, with or without illumination, and possess many points of excellence distinctly their own. They are acknowledged to be in beauty and effectiveness the highest type of the show case maker's art.

Write us for designs and prices.

5, 6, 8 and 10-ft. K. D. Cases, Antique Oak finish, carried in stock.

JOHN PHILLIPS & CO., Ltd.,

Detroit, Mich.

(Address Detroit Office.)

Windsor, Ont.

Letters from the Trade

Readers are requested to send for publication new ideas on any subject, technical or mercantile, of general interest to the trade. As this page is for the use of individual readers, we do not hold ourselves responsible for the views expressed.—Editor The Keystone.

Brazing Cast Iron, Etc.

ED. KEYSTONE:—Seeing the inquiry of "Brazer," in the Workshop Notes department of the March issue of THE KEYSTONE, concerning the brazing of cast iron, I would say that he can purchase an effectual compound from Ethan Viall, 215 South Main Street, Bloomington, Ill., who has invented a brazing process. It is a red powder and somewhat resembles powdered brick. It will unite broken castings, or cast iron to steel or wrought iron; in fact, it can be used for brazing anything in place of borax, while the joint does not necessarily have to be cleaned before brazing. It is used the same as borax. I have seen him braze pump handles, and he says that one has never broken afterwards. I have brazed washers broken in three pieces, made of cast iron, and it is impossible to break them where they have been brazed.

Yours truly,

Bloomington, Ill.

F. G. ISEMINGER.

Secret of Hard-Winding Watch

ED. KEYSTONE:—"Stemwind," who asks for information in the Workshop Notes department of your April issue, regarding a hard-winding watch, may be benefited by learning of my experience. A customer brought in a watch with winding square twisted off from the winding stem. Hard winding was found to be caused by the winding pinion being fractured, pressure from winding stem causing the arbor to expand in yoke, making it almost perfectly tight while pressure was applied. The above experience is so infrequent, that trouble in this direction is not looked for.

Yours truly,

Port Washington, Wis.

CHAS. F. ECKEL.

[Letters similar to above have been received from several other subscribers.—ED.]

ED. KEYSTONE:—I read with much interest your answer to "Stemwind" in April number, as I used to be greatly annoyed with the same trouble. You covered the cause thoroughly to a practical, experienced man; yet to be more explicit, I will further add that after you have noted all the causes mentioned, if the watch still winds hard, see if the movement doesn't fit too shallow or too deep in the case. In most instances they fit too deep, as the case screws naturally draw the movement in. In these two causes one can readily see that the winding pinion is not on a level with the center of the pendant. It took me longer to discover this simple cause than all the rest combined. But in the language of one of the heroes of my State. "Be sure you are right, then go ahead."

The most simple and quick roller jewel setter is the one I use, without removing the hairspring. Take a piece of copper wire, about No. 20, $1\frac{3}{4}$ inches long; file flat about $\frac{1}{2}$ the thickness, $\frac{3}{16}$ inch long on each end. With a round-bottom graver cut a groove in each flattened place, bend the wire in the middle, bringing the flat surface together; bend both ends up a little $\frac{1}{2}$ from the ends, and bend both apart about $\frac{2}{3}$ from the ends.

Place the roller in the grooves, press the wires together tight enough to hold up the weight of the wire; let the jewel hole be opposite the bent end, place a piece of shellac on the jewel hole, holding the wheel; put the wire in the lamp flame till the shellac melts, set the jewel in the hole, reheat and true up while wire is cooling. You can make several sizes, but one will answer, as you can bend the wire to clasp any size roller table.

Hoping the brethren who adopt this device will meet with success, I beg to remain,

Yours truly, W. T. RAY.

A Key to Prices

ED. KEYSTONE:—If you can induce the wholesale houses to use a key in their catalogues instead of the 50 cent. off as at present, it would be a great help to the retailers and would, I am sure, be greatly appreciated by them; as everybody, or at least nearly everybody, knows now-a-days when you show them a catalogue just what the article costs.

Yours truly,

Iron River, Mich.

M. OCHILTREE.

Regulating the Beat of Clocks

ED. KEYSTONE:—Misapprehending my letter on "Regulating Clocks," which appeared in your March issue, a number of jewelers have written to me asking if I meant that each clock was regulated after it had been given the exact number of beats to the minute. I could not find time to reply to all of those who wrote me, and I therefore wish to inform them through THE KEYSTONE that after the clock beats the exact number of beats to the minute it is then practically regulated, but it needs two or three days' watching to get it running very close. In the replies which I did send I stated that an Ingraham kitchen clock should have 71 beats, but it should have 142; and the Ingraham mantel should have 186 instead of 93. The Seth Thomas kitchen clock should have 156 instead of 78.

Yours truly, F. P. HEWES,

Delavan, Wis.

with H. Williams.

Beware of This Man

ED. KEYSTONE:—This man will come into the store, if he has not been there already, and will spend the day, if necessary. He will say, "I represent So-and-So, the well-known manufacturing company. I am introducing a line of perfumery and toilet goods to the jewelry trade, and only sell to one firm in one place." He will show you testimonial letters from jewelers, which tell how well they have done with the goods and how it helps their regular business, etc.

This man never does business with people who understand the goods and know the value of them. He not only sells to jewelers, but a neighbor of mine who keeps a wall paper store has the same outfit of goods. In some places milliners are his victims, and in one instance he victimized a stove dealer.

After he has spent nearly a whole day with you, and convinced you that you can sell goods that you know nothing about, he will read from his contract the "guaranty of sales," which is a fake promise to buy back the goods at the end of a year and pay cash for them.

Finally, you consent to have the goods sent to you; believing that if you cannot sell them you can return them, etc. Well, you sign the order

and what does he do then? He goes to the telegraph office and sends your name to the firm, and you are just \$160.84 worse off than when he came in. Although you have paid out no cash, you have done this: you have ordered \$160.84 worth of toilet goods of which you know nothing, and agreed to pay cash less 5 per cent. discount, or agreed to sign six innocent-looking papers called "acceptances," which are nothing more nor less than promissory notes. You may imagine if you sign the "acceptances" giving you a year's time to pay for the goods that you are still doing business with the concern this man represents, but such is not the case, for they immediately sell your notes to another collection concern at a discount and then you and the first concern are through business for ever, and you will have to pay the people who bought the notes, as they are protected by all the laws in regard to commercial paper. A traveling representative of a well-known perfume house informs me that this man receives for his day's work $33\frac{1}{3}$ per cent., or \$53.61.

You will notice by the enclosed clipping from a Brockton newspaper, that this dishonest fellow is not particular how many sale agencies he makes in a town.

Yours truly,

"EASY MARK."

[The clipping enclosed by our correspondent tells of a case in which the agent of the perfumery company visited a town and promised the sole agency to each firm buying his wares, but on a contract left with the houses it was specified that the firm would not be bound by any statements of agents. On this contract, it is said, the perfumery concern is going to sue the firms that, finding they had not sole agency, sent back the goods left with them. It is to be hoped that the above warning will put our readers on their guard against such schemes.—ED.]

A Clearing House of Ideas

ED. KEYSTONE:—I find a great wealth of practical information in THE KEYSTONE, and take special interest in Workshop Notes. I believe much would be gained if subscribers would exchange views in your columns; or, if having discovered something new, they would give their fellow-tradesmen the benefit of same, and in turn receive a like compensation from some brother jeweler.

Yours truly,

Cape Girardeau, Mo.

ED. STEINMEYER.

[Our columns are always open for such an exchange of views, and we invite our subscribers to send us novel and practical ideas of general interest.—ED.]

Covering for Unsightly Posts

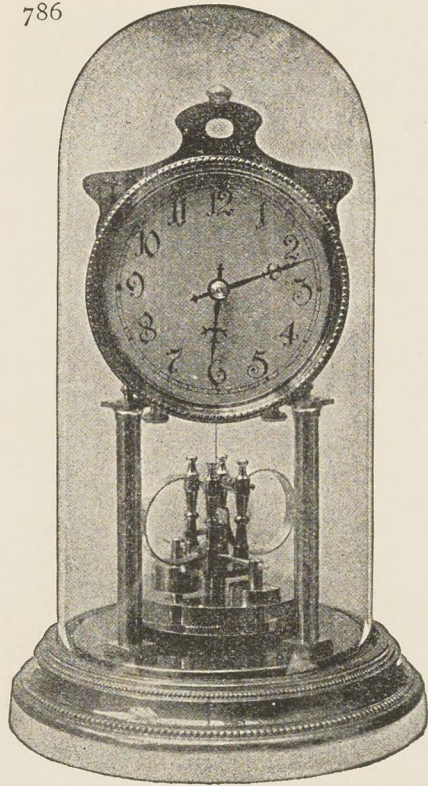
ED. KEYSTONE:—I have posts in my store and find them somewhat unsightly. What would you recommend to give them a pleasing appearance? Is there any material I can cover them with that would be preferable to painting?

Yours truly,

Terre Haute, Ind.

"P. B. S."

[A good covering for pillars or posts of this kind is onyx paper. It is easily applied to any smooth surface, and in appearance is as handsome as the beautiful stone which it is made to imitate, showing every detail of the original in the veins and color effects. It looks exactly like genuine onyx and is very cheap. When properly put on it may be varnished, after which it will last for a number of years, as it can be washed and cleaned like any other varnished surface. In window trimming, onyx paper can be used to cover any kind of frame work or columns, and its appearance is pleasing.—ED.]



Height, 12 inches. Diameter, 7½ inches.

"The Special Year-Long"

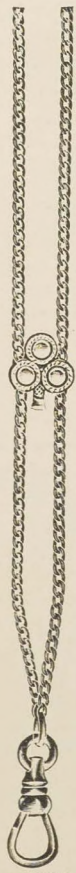
is by far the handsomest clock of the "400-Day" kind in the market. Handsome metal dial, 4 inches diameter, compensated pendulum.

JOBGING TRADE
SUPPLIED.

J. B. BECHTEL & CO.

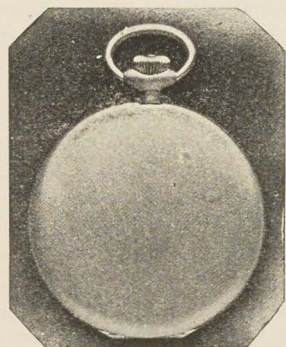
725 Sansom St., Philadelphia.

You Can Get a Selection Package
for the Month of May



9055, 8788.

LONGNETTE CHAINS
•
LOCKETS
•
RINGS



544.

Of Chains, Locketts,
Fobs, Charms,
Neck Chains and
Sleeve Buttons,

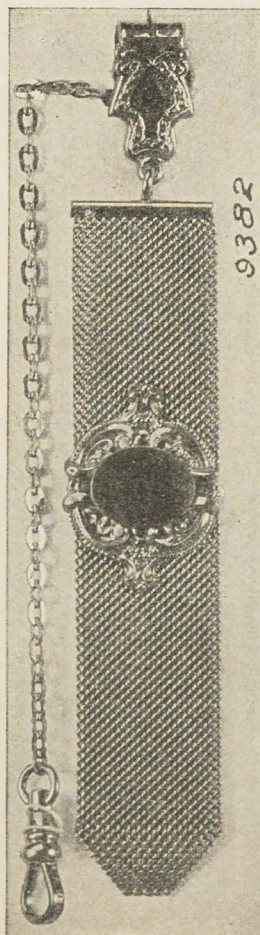
if you send us a card.
Watch for our special **Ring Circular** for May. You
will like the **Patterns** and
you will like the **Prices**
better.

Our monthly circular will
interest you.
Something New Every
Time.

Jewelry Department

SISCHO & BEARD,
St. Paul, Minn.

F OBS
•
SILK AND
METAL
VEST
CHAINS
•
CHARMS



9382

9382.

You are Running a Race

with everyone who is working at the same trade you are. All are striving for the prize of the best-paying positions, or the "best business in town." Some are falling behind the "bunch" and others are barely keeping up who might be among the winners. Who are the winners? None except those who are carefully trained for the race.

The Secret of Success is Technical Training.

Watchmaking and Engraving are, we believe, really the best-paying occupations. To reap the advantages, however, one must be a capable workman. The only way to learn the right methods economically is to go to a school. We have been told by persons who ought to know, that our school is the best. It is our aim to have it so, and the ability of our graduates to hold the highest salaried positions would seem to indicate that it is so. Let us send you our Prospectus, which will interest you.

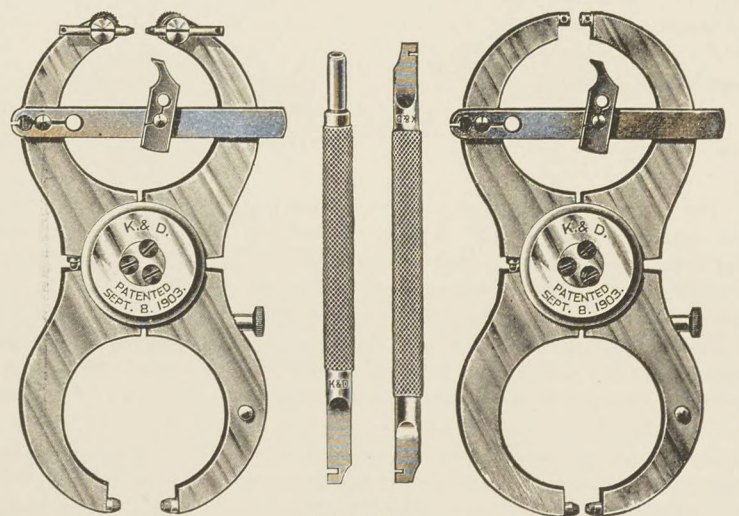
The Ezra F. Bowman Technical School

of Watchmaking and Engraving,

LANCASTER, PA.

Jewelers over the entire
country ask for our gradu-
ates as workmen.

K & D QUALITY



Cuts 45 Size.

No. 401. Parallel Centers. Solid Nickel.
No. 402. Parallel Centers. Brass.

No. 404. Solid Nickel.
No. 405. Brass.

FOR SALE BY THE TRADE.

MADE BY

KENDRICK & DAVIS,
Lebanon, N. H.

Send for
Catalogue No. 5.

Among the Trade

The trade are invited to send us reliable items of news for this department

Arkansas

Lewis Marshall, who has been identified with the Camden Jewelry and Music Company, of Camden, has recently resigned his position with that firm.

W. M. Hatley, of Camden, will visit the Chicago jewelry jobbers in the near future on a purchasing trip.

B. Gottlieb, the popular jeweler of Pine Bluff, sailed for Europe the 10th of April, in company with his son Joseph and several citizens of Pine Bluff. Mr. Gottlieb will visit his old home in Frankfurt, Germany, and other points of interest in the Fatherland prior to his return. I. R. Leitner, who has been with Mr. Gottlieb for a number of years, will have charge during his absence.

W. B. Elliott & Bro., of Camden, have moved into their handsome new store. Mr. Elliott was for some time located in the Hardy Drug Store, but increase of business caused the recent move. The new store is well appointed, the fixtures being in cherry and beveled glass mirror and presents a charming effect. H. E. Elliott, who has been in the lumber business in Arkansas for some time, is identified with his brother in the jewelry business.

W. J. Hutsom, of Helena, has purchased the jewelry store of Mrs. Fannie Claffine, of Turnica, Miss., and has had the stock and movable portion of that business conveyed to Helena. Jeweler Hutsom is preparing to equip his store in a very handsome fashion.

A. J. Blackstock, of Van Buren, has sold his stock and fixtures to Carl Shibley, who will continue the business at the same location and with the same staff of assistants. Mr. Shibley is an accomplished and progressive business man, who will, no doubt, make a gratifying success of this undertaking. Mr. Blackstock has no definite plans for the immediate future, but will take a well-earned rest for the present, having been tied down to business continuously for the past fifteen years.

District of Columbia

John Hansen, the well-known jeweler, 704 Seventh Street, Washington, recently purchased from Justice Ashley M. Gould, of the District Supreme Court, a handsome residence at the head of Oak Avenue, in Tacoma Park. His residence is one of the prettiest in Tacoma Park, and the price paid for it by Mr. Hansen was \$8000. During the year past much of the interior has been remodeled, and an addition has been made containing two handsome rooms, one of them a spacious dining-room, finished in quartered oak.

Illinois

The store hitherto conducted by E. H. Goulding's Sons, of Freeport, has been sold to O. D. Emerick, who has long been a resident of that city and until recently connected with the State Bank there. Last September Ed. P. Goulding suffered a paralytic stroke which, in his own words, "put him out of business," and since then he has been unable to attend the affairs of the firm as he would wish to. Pursuant to medical advice he has given up this end of the business, but the old store at Alton, established in 1852 by his father, is still doing business at the old stand under the able management of the younger son, C. S. Goulding. Mr. Emerick, the successor of the Goulding concern at Freeport, has an elegant stock, and in view of his popularity in that section, and his progressive ideas, should make a success of his new undertaking.

Indiana

A. A. Clark, who recently opened a jewelry store in Spencer, has purchased the store in that place formerly owned by L. E. Heaps, and has moved into the last-named premises.

Iowa

J. L. Warbasse, jeweler, optician and musical instrument dealer, of Denison, is watch inspector for the C. N. W. Railroad. Mr. Warbasse has built up a substantial business in his different lines,

but has not in any way relaxed his efforts to secure more trade. He is a believer in modern methods of storekeeping, ample display of goods in the window and in the store, attractive surroundings, good advertising and all other factors that are known to make for progress. He is one of the best-known jewelers in that section, and doubtless many years of success still await him.

Louisiana

The Jewelers' Fraternity, of New Orleans, held its regular monthly meeting on Friday evening, April 8th. After the transaction of routine business the meeting proceeded to the election of officers. This resulted in the unanimous choice of the following: Otto Granzin, president; Thos. F. Hall, vice-president; Daniel S. Ramelli, recording secretary, Alphonse Mandot, financial secretary; L. D. Fincke, treasurer; Albert Dussé, warden. With the exception of Thos. F. Hall, who was elected to succeed L. B. Sorenson in the vice-presidency, the officers named above are identical with those of last year. Mr. Sorenson declined to be again a candidate for office owing to business exigencies. The officers will be formally installed at a meeting to be held on May 13th. This occasion will be marked by a grand smoker, which promises to prove a delightful event in every respect. A committee has charge of the arrangements, and is composed of Frank Cerise, chairman; F. H. Poley, George Villerman, Joe Owin, Albert Dussé, Daniel S. Ramelli and Thos. F. Hall. These gentlemen are working zealously for the success of the reunion, and it is safe to predict that their efforts will be amply rewarded by the result. The Fraternity is a social and benevolent organization composed of employees of regular jewelry stores. The present membership amounts to eighty. Its objects are to promote fraternal feeling, to relieve the sick and distressed, and to further the interests of members.

A recent issue of the New Orleans *Sunday Times* contained a highly eulogistic review of the business and career of J. D. Bayhi, 1618 Orleans Street, that city. Mr. Bayhi was born and brought up in New Orleans and received a liberal education at a commercial college. He established his present business three years ago, and has succeeded in building up a substantial trade. He makes a specialty of repair work and buys large quantities of old gold and silver, besides broken watches and jewelry. He is prominently identified with a number of secret and benevolent organizations.

Maryland

Arthur C. Macy, who was connected with J. S. MacDonald, of Baltimore, for sixteen years and who two years ago went on the road for Fred. W. Lewis, and subsequently for Henry E. Oppenheimer & Co., both diamond and pearl firms of New York City, recently decided to give up traveling and go into the retail jewelry business for himself. He has purchased the business hitherto conducted at 33 W. Lexington Street, Baltimore, by Henry A. Schroeder, has entirely renovated the premises, installed mahogany fixtures, electric lights and an ample stock of high-class goods. He hopes to have one of the prettiest jewelry stores in the city, and to this end will give especial attention to the decoration of his place of business. Mr. Macy has begun under encouraging auspices and has the good wishes of many friends, both in Baltimore, which is his native city, and in the jewelry trade of the East and Middle West.

Massachusetts

John Beckford Hill, of John B. Hill & Son, Beverly, died recently after an illness of three weeks' duration. Deceased had reached the venerable age of eighty years and was a native of Beverly. He served his apprenticeship with Edward Currier, of Salem, and on November 1, 1844, he opened a store for himself on Cabot Street, Beverly. In 1854 he moved the building back and built an addition to it. In 1866, however, he purchased another building, remodeled it and continued in business at this stand until his demise. He made changes in the structure from time to time to keep up with the progress of his business. In 1884 his son, John F. Hill, became associated with him in business, the firm-name since that time being John B. Hill & Son. Deceased was perhaps the best-known business man in the town, and during his long career there had served with credit

in many civic capacities; namely, as auditor, school committeeman, overseer of the poor and assessor. He represented Beverly in the Legislature in 1854, 1874 and 1876. He was the pioneer of the gas business in that town, and was treasurer of the gaslight company for a quarter of a century. He was a Mason of high degree, and was also a member of Beverly lodge, Knights of Pythias, a prominent member of the First Baptist Church, Bass River lodge of Odd Fellows and other organizations. Besides his son John F. Hill, the surviving partner in the business, he is also survived by a married daughter and another son, C. F. Hill, of Somerville.

Michigan

W. L. DeGraff, the jeweler and optician, who has been at New Buffalo for the last eleven years, has been appointed watch inspector for the Chicago division of the Pere Marquette Railway.

George Haller, of Ann Arbor, is mourning the loss of his wife, who died recently after a long illness from a complication of diseases. Prior to her marriage deceased was Miss Mary B. Krause. She was a devoted wife and mother, who was held in high esteem by a large circle of friends. THE KEYSTONE unites with the many friends of the bereaved family in extending its condolence.

Missouri

J. C. Bellinger, of Alexis, Ill., has accepted a position in the jewelry department of H. M. Sigloch's "City Drug and Jewelry Store," Keytesville. He entered upon his duties on Monday, April 4th.

New Jersey

The jewelry business hitherto conducted at Washington by W. H. Merrill has been purchased by James H. Johnston, hardware merchant of that place, and incorporated as a department of his regular business, with Mr. Merrill in charge.

New York

Frederick W. Butler, a well-known jeweler and one of the most promising business men of Albion, died recently at the age of sixty years. Deceased was a native of the Isle of Wight, England, and came to America with his parents in 1852. It was in 1863 that he came to Albion and entered the jewelry store which was then conducted by H. W. Preston. He remained in this establishment seventeen years. In 1882 deceased succeeded to the business of the late J. T. Brown, and this he owned and conducted up to the time of his death. The late Mr. Butler accumulated a substantial business. He enjoyed the esteem of the entire community in which he lived. He served on the board of education for a part of one term, and rendered efficient service in that capacity. He was a member of Christ's Episcopal Church; Renovation Lodge, No. 97, F. & A. M.; Orleans Chapter 175, R. A. M., and was also a member of the Albion Chamber of Commerce. A widow, one son and two daughters survive him.

Henry Elbe, a well-known member of the jewelry trade of Niagara Falls, and one of the most widely esteemed citizens of that city, died recently. Deceased was born in Hamburg, Germany, in 1840. He came to America in 1859, landing at New Orleans. His entire career in this country was devoted to the jewelry and watch-making business. He it was who established the firm now conducted at 105 Falls Street, Niagara, by his eldest son, Max H. Elbe. Deceased was a charter member of Niagara Falls Lodge, No. 81, I. O. O. F., and of the Niagara Falls Exempt Firemen's Association, being one of the organizers of that association and its vice-president up to the last election. He was a veteran of the Civil War, having served in the Confederate navy as a gunner on board the sister ship of the *Merrimac* on the Mississippi from 1861 to 1862. He was taken prisoner, was subsequently liberated, came North and located in Niagara Falls, where he remained until his death. He was an honorary member of Mabon Post G. A. R., of Sanborn, being ineligible for active membership on account of serving on the Confederate side. The funeral was attended by delegations from the bodies with which he was affiliated and by a large number of citizens. In addition to M. J. Elbe, who, as told above, now conducts the business, deceased is survived by another son, Sigmund G. Elbe, a married daughter and a number of other relatives.

(Continued on page 791)

Mercantile Fountain Pen

In many new styles, in cabinet and show case assortments.

No. 3 A retails \$2.00



ACTUAL SIZE.

STERLING SILVER PENCIL HOLDER.

The daintiest and most useful pencil holder yet made, and in the most convenient shape—nearly flat, in reality an oval flat.

Retail price—
Plain . . . \$1.00
Chased . . . 1.50
Decorated Pattern, 2.00

Made and warranted by

AIKIN, LAMBERT & CO.

Nineteen Maiden Lane, NEW YORK.

Manufacturers and Exporters of GOLD PENS, PENCILS, TOOTHPICKS and NOVELTIES.

General Agents of PAUL E. WIRT.

With our Sample Sets you will prevent orders from being placed with out-of-town parties.

Commencement
Invitations
and
Programs.

Our Sample Sets
are the finest in
the field.

Write for
information.

Wedding
Invitations,
Calling Cards,
Embossed
Stationery.

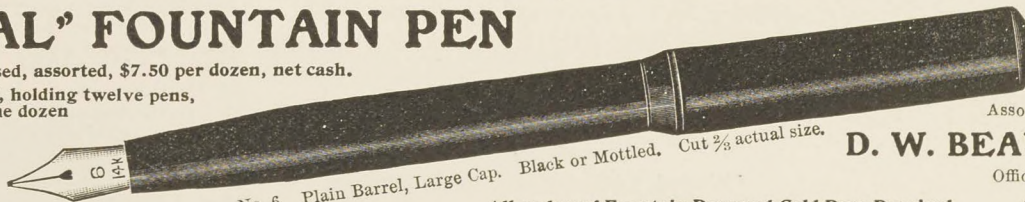
WM. FREUND & SONS, 174-176 State Street, CHICAGO.

THE "RIVAL" FOUNTAIN PEN

SPECIAL No. 1, plain and chased, assorted, \$7.50 per dozen, net cash.

A HANDSOME PLUSH TRAY, holding twelve pens, given with the first order of one dozen or more pens.

Send for catalogue.
Export trade solicited.
Send for prices and discount to the trade.



No. 6. Plain Barrel, Large Cap. Black or Mottled. Cut $\frac{3}{4}$ actual size.

D. W. BEAUMEL & CO.,

Office and Factory,

45 John St., New York City.

Ask your jobber for the "RIVAL" Pen.

All pens are 14 K. gold. Every pen warranted.

Members of National

Association of Manufacturers of U.S.A.

All makes of Fountain Pens and Gold Pens Repaired.

ELECTRO-PLATING SALTS.

THESE ELECTRO-PLATING SALTS ARE PREPARATIONS IN DRY FORM CONTAINING METAL AND CHEMICALS IN ACCURATE PROPORTION PRODUCING AT ALL TIMES CORRECT SHADES. DISSOLVED IN WATER THE BATH IS INSTANTLY READY FOR USE. WORKED WITH EITHER DYNAMO OR BATTERY, SAME AS OTHER SOLUTIONS.

SOME OF THE SALTS: ROSE GOLD, GREEN GOLD, PARISIAN, ROMAN, 14 OR 18 KARAT, RED, GUINEA, OLD ENGLISH GUINEA GREEN, GUINEA ROSE, GOLD DIP, SILVER SALTS, FRENCH GRAY DIP, SILVER EBONIZER, OXIDES, ETC.

Our Orange Rose Gold is the Yellowish Red Shade.

Write for Circular and Price-List.

U. S. ELECTRO-CHEMICAL CO., H. Hirschbach, Prop., 80 Elm St., near White St., New York.

Special Offer to Dealers.

If there is no wholesale dealer in your vicinity, on receipt of \$1.00 in cash or money order, we will send to any express office in the United States, all charges prepaid, 1 dozen boxes, regular size

SILVER

ELECTRO-SILICON

POLISH

and 100 samples for free distribution. Its exceptional merit has made it famous around the world. Used by owners and makers of Valuable Plate for more than a quarter century.

Electro-Silicon Silver Soap, \$1.25 per dozen.

THE ELECTRO SILICON CO., 30 Cliff Street, New York.



Styles in Stationery

THOSE of our readers who are stationers as well as jewelers have a double interest in weddings, inasmuch as they are in a position to furnish the invitations, etc., as well as the presents. As the demand for wedding stationery forebodes a brisk matrimonial season it will gratify the jeweler-stationers to know that thus far this year there has been practically no change at all in the style of wedding stationery and for the summer months it may be safely assumed that there will not be. This assertion is ventured because the prominent engravers in New York and in other large cities have already bought so heavily of practically the same stock and sizes that were in vogue last year, that no change can be contemplated very soon.

Wedding Stationery

On the subject of wedding stationery for this season the *American Stationer* says: Engravers and stationers in smaller centers are beginning to place their orders for the same lines of goods, and judging from the present demand, the sales of wedding stationery this season will certainly go far beyond that of any previous one. The increase in the demand for this variety of stationery from year to year is said by the representative houses in the line to be little short of marvelous. Only a few years since the manufacture of such goods was of comparatively slight importance, but under the stimulus of the constantly increasing demand, it now occupies considerable of the attention of the most prominent manufacturers of high-grade stationery. Only this year another house, which has long been widely and favorably known as a maker of high-class papeteries and writing papers, has entered the wedding stationery field and the demand for its goods is already so large that the success of the department is assured beyond a doubt.

The increased demand for fine wedding stationery is accounted for, not so much by our actually increasing population as by the greater prosperity of the country and the desire on the part of all the middle classes to live up to all the little conventions in such

an interesting and important a matter as a marriage ceremony.

High-Grade Stationery in Demand

The increased demand for wedding stationery is said to be specially noticeable from the more rural sections of the Middle and Far West and the South. The big cities and more important towns in

The Stock and Lettering

The stock remains exactly what it has been, a heavy variety of vellum-finished paper that approaches a dead white, or an absolutely colorless tint if that expression be allowable, as nearly as possible.

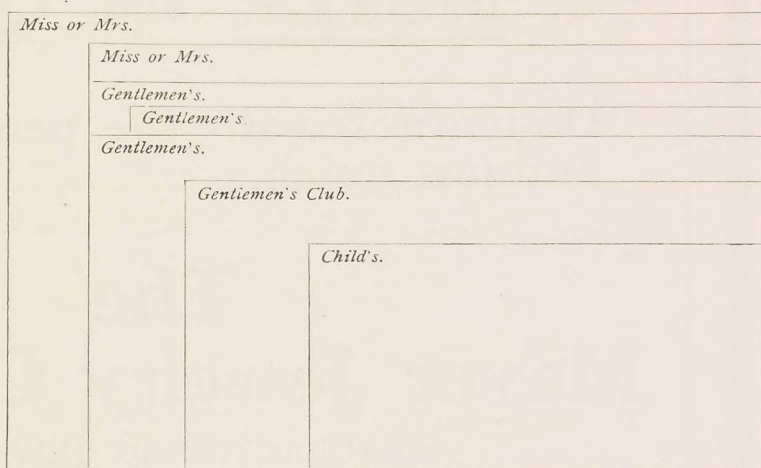
Old English, script and Roman are all in good form as regards the lettering. Perhaps the first mentioned will be more used than last season. For exceptionally fine functions it is to be preferred perhaps, but the cost, which is about three times as much as script, tends to restrict its popularity somewhat.

The style of wording has not changed since last year. Those who have THE KEYSTONE on file will find the correct form of wording by referring to the Stationery Department, page 1011, of the July, 1903, issue.

The diagrams on this page show the various sizes of cards which have the imprimatur of fashion at the present time.

New Styles in Paper

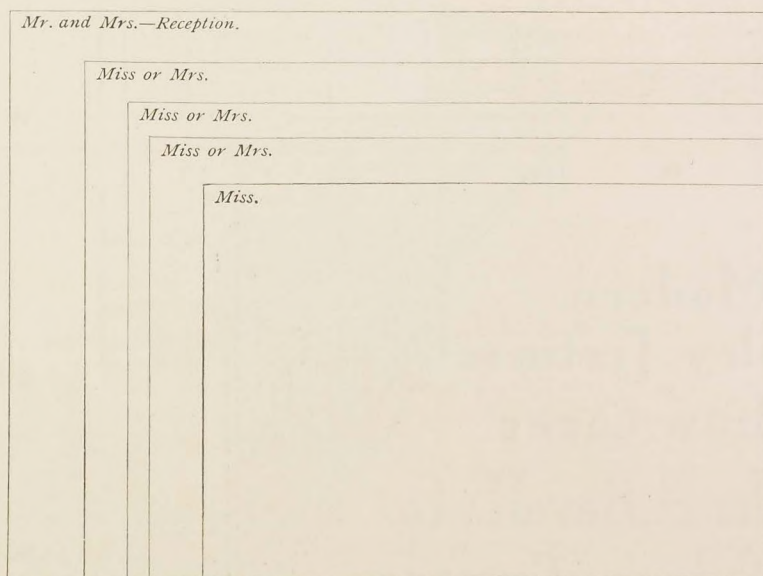
The tendency in writing papers this spring is more emphatically than ever in favor of fabric finishes. Most styles, of course, resemble those so widely known to the trade under the original fabric paper names of French organdie and linen lawn, though the lines so cleverly imitated in the web and woof of the papers may now be had very much finer and very much coarser than originally. In sizes the tendency is towards a sheet but slightly longer than wide. This size when folded gives an oblong shape and the oblong envelope, which is the most popular one just now, can be used with it. Possibly the most noticeable feature about the spring envelopes is the numerous varieties of the wallet flap that are being shown. There are round wallet flaps, the wallet flap with square corners, the long wallet flap, the abbreviated wallet flap, and a long list of others which deviate more or less from the more commonly known varieties of wallet flaps. The old conventional style of wedge shape flap still figures well in the lines, but it has lost considerable of its popularity to the wallet flap. Many licenses have also been taken with it and it is shown much longer and much shorter than ever before.



Fashionable Sizes of Cards

these territories report a constant and increasing demand for the best wedding stationery, and dealers there who have not yet awakened to the possibilities of this business cannot afford to neglect it much longer.

As already mentioned the changes in styles this year have been comparatively unimportant and are manifest most in a tendency to make the sheet rather more nearly square than it has been, making the envelope more oblong than last year. While this new style has had some demand it may be mentioned that it has not displaced the style of last year to any great extent. This means, therefore, that the sheet which is slightly longer than it is wide may more especially be considered the correct thing.



Fashionable Sizes of Cards

We are headquarters
for

**Medals,
Class
Pins
and
Class
Rings**

Send for Estimates and Designs and
remember the words,

"MEYER" and "QUICK."

Do business with the people who do
business quick.

**The
Meyer Jewelry Company,**
MANUFACTURING JEWELERS,
Kansas City, Mo.

SPECIAL VALUE. Revell No. 400 K Outfit.

PRICES QUOTED UPON APPLICATION.

4 Wall Cases, each 8 feet long;
5 Show Cases and Tables, each
8 feet long;
2 Screens, each 6 feet long.

We can furnish any quantity of wall
cases, show cases, tables and screens
immediately.

Send list of each kind required and
we will be glad to quote prices.

DESCRIPTION.

Oak, hard oil rubbed finish. Glass
double strength.

WALL CASE.

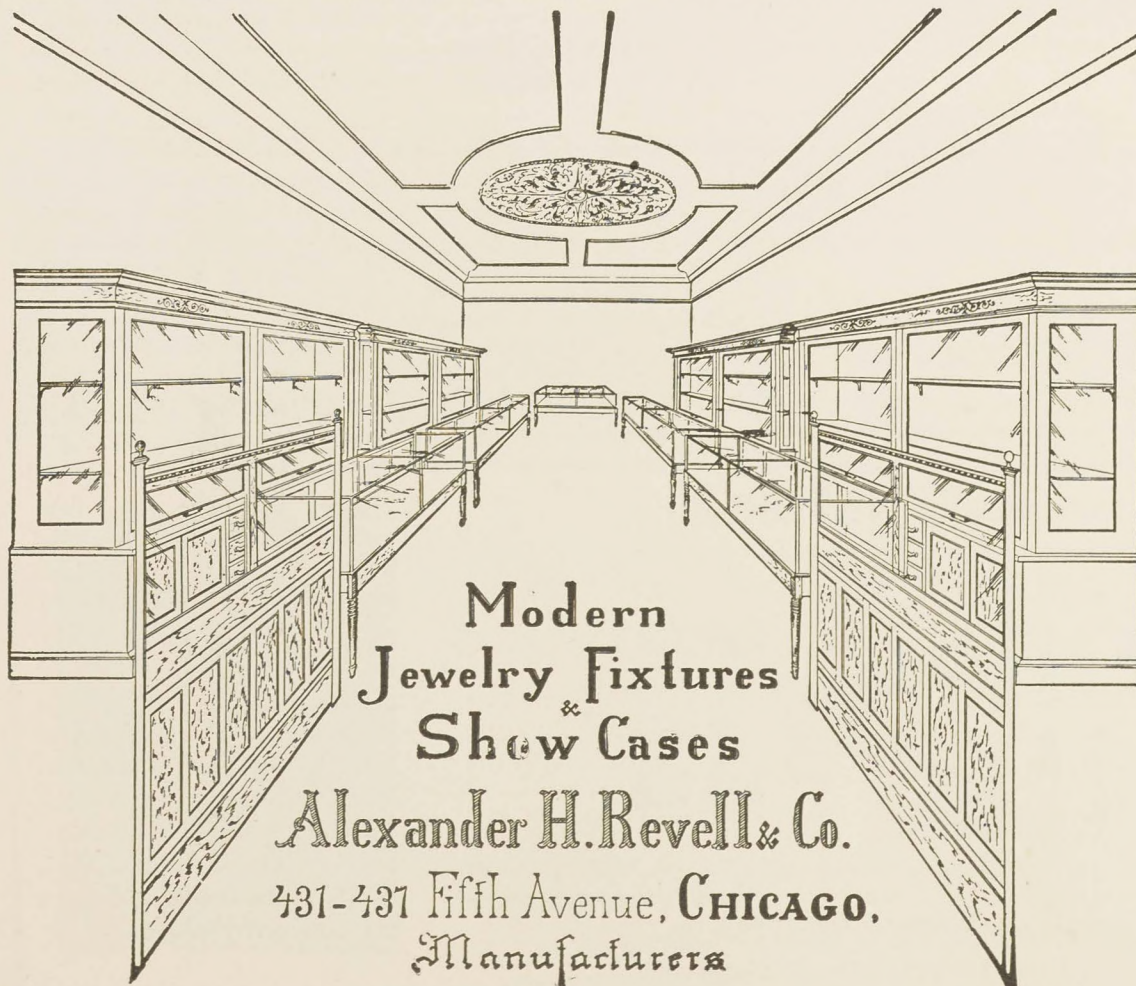
Base part 30 inches high, 29 inches deep,
outside; three drawers in center, cup-
boards either side with horizontal sliding
paneled doors. Upper part 54 inches
high, 18 inches deep, inside. One 10-
inch and one 12-inch wide shelves on
brackets. Shelves and interior lined with
dark green felt. Two doors sliding up
and balanced by weights.

SHOW CASE AND TABLE.

42 inches high, 28 inches deep, outside.
Show case front glass 14 inches high,
top glass 24 inches wide, front and top
in two lights each, horizontal sliding
doors lined with American mirrors.

SCREEN.

66 inches high to top of rail, 71 inches
high over all, paneled below, glass above.



**Modern
Jewelry Fixtures
&
Show Cases**

Alexander H. Revell & Co.

431-437 Fifth Avenue, CHICAGO.

Manufacturers

Among the Trade

(Continued from page 787)

New York

Robert B. Lowe, of Lowe Bros., of Port Byron, was married recently to Miss Nora F. Kelly, formerly of Weedsport. The ceremony was performed by Rev. A. B. Minaker at his home in Nauvoo. THE KEYSTONE joins with the many friends of the happy pair in extending them congratulations.

Ohio

D. R. Funk recently sold out his business at West Salem to N. H. Hines and purchased that of the Brown Jewelry Co., of Bellefontaine.

The partnership hitherto existing in the firm of D. C. Cornwell & Bro., of Glouster, has recently been dissolved by mutual consent, D. C. Cornwell retiring from the concern. The business is being continued at the same location by G. A. Cornwell, who was manager of the firm of D. C. Cornwell & Bro. since its inception.

A sorrowful affliction has fallen upon F. D. Pierce, of Ashley, whose wife died recently, leaving a fifteen months' old baby. Jeweler Pierce has many friends in the trade, who will regret to learn of his misfortune. THE KEYSTONE joins with them in extending to him sincere sympathy in his sad bereavement.

Pennsylvania

C. W. Bixler, the well-known jeweler, of Easton, has announced that on March 31st he formed a partnership with Samuel P. Ludwig, who has been connected in business with him for so many years. The firm is now known as that of C. W. Bixler & Co.

August Loch, one of the best known jewelers of Allgeheny, is mourning the loss of his wife, whose death occurred recently after a four months' illness. Deceased was highly esteemed by a large circle of friends, and much sympathy is felt for the bereaved family.

I. Neafach has purchased and will continue the business that has been conducted successfully in Johnstown for the past twenty-two years by W. A. Kraft.

Texas

A. Arnold, the popular salesman and watch repairer for C. E. Erber, of Texarkana, is about to erect a fine new residence in that city. Mr. Arnold is a recent benedict.

Burton Chapman, the genial missionary for the Elgin National Watch Company, is visiting the trade in Texas and Arkansas this month.

A. S. Tonville, of Wichita Falls, will move into his new store building during the summer with a new stock of goods and fixtures.

L. M. Frey, who conducted the Henrietta Jewelry Company, of Henrietta, has closed out the business.

S. Gloyd has opened a repair shop at Hico. Mr. Gloyd contemplates putting in a full line of watches and jewelry in the fall.

C. G. McCord, who was for a number of years with the Dublin Drug and Jewelry Company, of Dublin, has embarked in the commercial world for himself. Mr. McCord has a small, well-appointed store and stock and his popularity in Dublin assures his success.

Dan Copeland, of the Copeland Jewelry Company, of Marshall, will pay a visit to the Eastern markets during the present month.

Mrs. W. D. Pittman, wife of the popular jeweler at Mexia, recently underwent a delicate surgical operation at Fort Worth, Texas.

J. A. De Gaugh, of Terrell, is closing out his jewelry stock and will hereafter devote his entire time and energy to the drug business.

Goodman & Miller have closed out their jewelry stock at Navasota.

F. L. Schuester, of Texarkana, whose store building was damaged by fire a short time ago, is now established on Broad Street in a very pleasant location. Mr. Schuester is one of the oldest jewelers in the business, having spent forty years of his life in this line.

Jeweler G. W. Haltrom, of Bowie, is soon to occupy a new store building which is being erected for his occupation. Mr. Haltrom is regarded as one

of the most progressive and successful dealers in the Southwest, as he is identified with jewelry stores at Chickasha, Ind. Ter., and Hobart, Okla. Mr. Haltrom expects to occupy his new store in Bowie some time in June.

E. W. Treen, of the missionary force of the Waltham Watch Company, has been calling on the trade in Texas the past month.

E. Smith has recently opened a jewelry store in Bowie. Mr. Smith has been identified with the jewelry trade for a number of years in the Southwestern country.

C. Wilson has resigned with W. A. Peck, of Denison, and accepted a position as salesman and watch repairer with Jeweler H. W. Bounds, of Dallas.

Joseph Ruetsch, the popular Main Street dealer in Dallas, is about to move into a fine new store building which is being fitted up especially for him.

J. Hunt has recently opened a jewelry store at Henrietta. Mr. Hunt is a practical watchmaker and competent jeweler.

E. Arnold, who has been with Chas. E. Erber, the popular jeweler, of Texarkana, for the past five years, resigned his position as salesman for Mr. Erber and will return to his old home in St. Louis, where he will engage in the hotel business on West Bell Place, in company with his mother.

West Virginia

F. Midelburg has opened a new jewelry store in Charleston with a nice line of watches, clocks, diamonds, jewelry and art goods.

The Traveling Man of To-Day

"Man," says the poet, "is half divine," "and half asinine," replies the cynic. Perhaps the truth is that he is both of these and a lot of other things besides. Of course, the traveling man is only the average man away from home, and yet that somehow doesn't sound just true. He is a little more and less than that. Let's put it this way: He is the average man who has answered the wander call in his breast.

The Drummer— Boyhood's Idol

Were you ever a boy in a corn field on a hot June day, and just as you had come to the end of the row and were taking a long pull at the lukewarm water in the jug by the fence corner, did the afternoon train, westward bound at forty miles an hour, pass around the corner of the hill and go roaring and screaming off into the strange land that lay over and beyond Brownville? Or did this happen in the evening when you had washed the stains of the day's work from you and had gone down to the post office and then over to the depot to see the train go through? And did something give a savage tug at your heart so that it hurt, as with big hungry eyes you saw all of these people going so blandly and with such careless mien into that wonderful and enchanted land that lay east of Jasperville?

We have memories of a fellow that has crept away by himself on many such a night, and there, lying on his back amid the grass and looking at the stars, he had such a hungriness to get on that train that he thought he would die of it. Oh! to step briskly along as did that little round man with grip in his hand! To laugh and call by his first name the wonderful being with the brass buttons and the cap, and then to hear the bell ring, the snort of the engine and the plangent thump of the wheels upon the rails.

The Modern Salesman

The world has moved fast in recent years, and the rapid evolution that has taken place in all things has necessarily affected the traveling man. We are living in a new commercialism to-day. The old methods of mer-

chandising have been revolutionized. Like the crude machinery used in the industrial world of the past, they have been set aside for the new and improved methods which are now in force. The high intellectual and moral plane of present-day civilization demands higher laws to govern the relations between the distributor and the purchasing public. With this advance has come also the demand for a higher class of men as salesmen on the road—men with larger abilities and a wider range of talents. The modern idea calls for true salesmanship, which, in its highest sense, is a science and an art. It is a science because of the many deep principles and complex laws involved, an art because of the talent and skill required in the application of those laws and principles to effect a desired end. The ability to sell goods successfully is inherent, just as the talent to paint a picture is born in the artist.

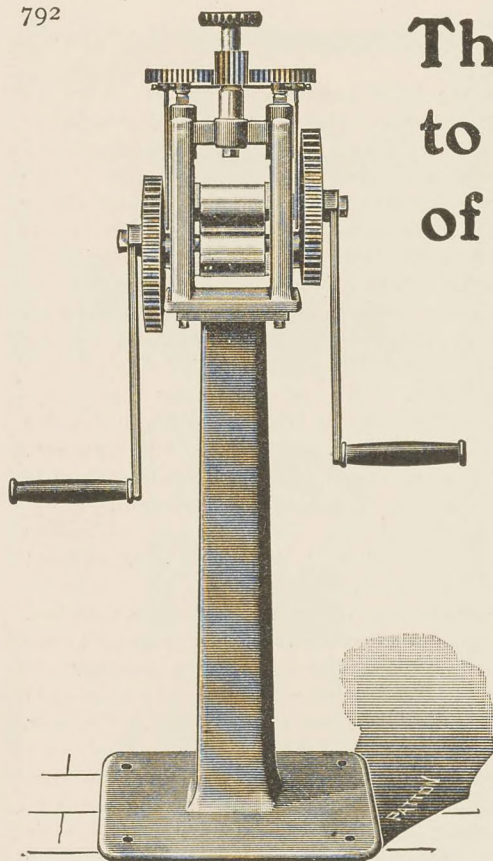
The secret of salesmanship is to reach the will of the customer, and there are two channels to the human will, the intelligence and the emotions. It is the man who has the power to create a desire in the customer that is the man of value. The wise salesman—the one who has this creative power—first gains his customer's attention, then her interest; and interest ripens into desire, and desire into a resolve to purchase. So much is involved in this process, simple as it seems, that a whole lifetime may be spent in attaining a high degree of perfection.

Energy the First Requirement

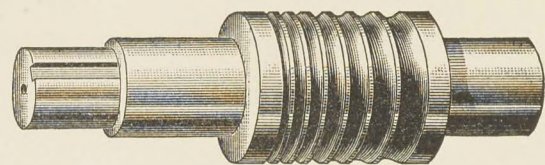
The primary essential of salesmanship, as in every other walk of life, is that indispensable force called energy. It is the active, wide-awake salesman who heads the list. The successful salesman must be a hard worker not only with his hands but with his head. He must go below the superficial part of his brain—must stir up his mental soil. The unthinking salesman makes his profession automatic, robbing it of its real life and soul. The model salesman must be a man of ideas; he must acquire a thorough knowledge of his stock of goods. A knowledge of human nature, too, is almost as indispensable as a knowledge of the merchandise itself. Some customers can be driven, others must be led; some must be talked to, others must be allowed to do the talking, etc. He should study well the law of suggestion, being able to quickly judge the customer's tastes and fancies, then hasten to supply the demand. He must possess tact—that faculty of the mind which gives quick perception and ready discernment; must cultivate good judgment—that operation of the mind which enables him to decide things wisely and correctly. Determination, sincerity, punctuality, constancy—these are other essentials which the ideal salesman must be acquainted with.

Artificial Camphor.

There is now in operation, on a commercial scale, at Port Chester, New York, an artificial camphor factory, the product of which is intended to compete in the market with the natural substance. It is maintained that it does not differ, except in the manner of its origin, from that extracted from the camphor-trees of Formosa. Artificial camphor is made from essential oils derived from turpentine. Chemically the only difference between turpentine and camphor is the possession by each molecule of the latter of one atom of oxygen which is lacking in the former. By a chemical process the needed oxygen is supplied. Three-fourths of the whole supply of camphor is used in the arts, and one-fourth in medicine.



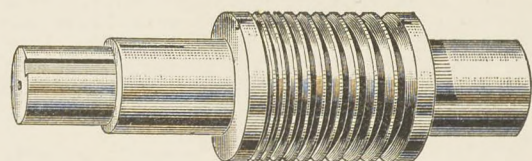
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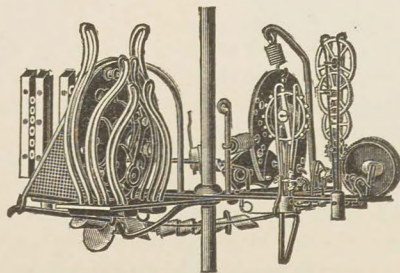
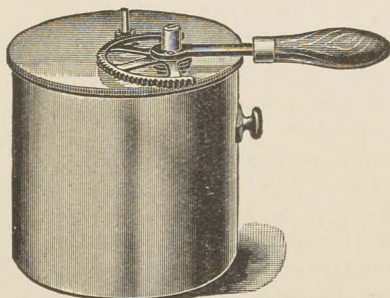
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Our Rights and Our Duties

BY JOHN TWEEZER

In a recent address, President Eliot, of Harvard University, said that George Washington always considered more his duties than his rights.

Of how many of us can this be said? Is it not a fact that from our habitual viewpoint we first focus our eyes upon our rights and so strain our vision in study of that interesting subject that subsequent contemplation of our duties is a trifle blear-eyed? Or is it not a fact, indeed, that many of us never withdraw our gaze at all from the fascinating study of "rights"? never get so far as even to entertain the thought that there may be "duties" somewhere within the range of vision? And yet what vast mischiefs to the human society might be averted, what splendid gains might be added to the total of human happiness, what inspirations would come to the practice of justice and equity, if with each one of us individually, and with communities and peoples as a whole, the rule of George Washington obtained—to consider more one's duties than one's rights!

Nowadays we hear much assertion of the rights of labor: I fail to notice anywhere a reminder from the propagandists that labor has equal measure of *duties* to be observed and fulfilled. So too, as Disraeli wrote, "Property has its duties as well as its rights." In the whole range of human activities, in all the crowding interests of individuals and nations alike, too much place is given to discussion of the *rights* of man and men—far too little to the contemplation of the coincident *duties* which give vitality to those rights. One cannot assert rights who makes no acknowledgment of duties. They cannot be separated. They go in pairs, always. The assertion of a right presupposes the performance of a duty. And here is the crux of the whole matter, as Washington perceived it and as all honest men would practice it, had they the moral strength of Washington: *One must perform his duties BEFORE he demands his rights.*

But what an upsetting this would make of universal policies and practices! The whole world would be turned topsy-turvy—to the whole world's advantage. Disputes between nations would have to pass through the alembic of arbitration, and when the moot questions between them would come forth refined of their dross, resultant wars and wastes would be few indeed. How many "strikes," how many "lockouts," would survive the practice of first considering the *duties*, respectively, of Labor and Capital? The crowded calendars of the courts of law would be wiped nearly clean; the legal pro-

fession would be a barren field, if men practiced the advice of Abraham Lincoln, in his speech of February 21, 1859: "Let us dare to do our duty, as we understand it."

And you, Mr. Jeweler—and you, Mr. Clerk—where would *you* stand, if you cultivate the practice of first studying the question of your duties before you "squared off" in assertion of your rights? Wouldn't there have to be a necessary shifting of your habitual point of view? Wouldn't a flush come to your cheek, as you recalled the positions taken by you in the past on this question or on that? Wouldn't there be some acute spasms of conscience and some very active mortifications of spirit?

You demand the performance of certain services to you, on the part of your employees: have you faithfully fulfilled your own duty to them, before insisting on what is due you? Have you taught them as you should, respected their personal dignities as you should, safeguarded them from temptation as you should, inspired them by example as you should? Have you honored *their* rights, as you should?

And you: You are much concerned lest the "boss" ignore your rights in the matter of wage and hours and what-not; you may not "speak up," but you nurse your sense of deprivation. You sulk, or give grudging service, or sow the seeds of disloyalty in your associate clerks; but you never get outside of yourself for a minute to look the question of your *duties* squarely in the eye. Isn't your first duty to be *loyal*? and your second duty to give the utmost service within your powers? See that these duties are well and faithfully performed; *then* venture to assert your rights. In nine times out of ten the rights will have been recognized by this time and the "boss" will thus have fulfilled *his* duty.

The whole matter resolves itself to a question of correct appreciation of the relations of man to man, of men to men, of peoples to peoples. In its last analysis it is simply the interpretation of the Golden Rule: "Do unto others as you would have others do unto you."

Do not be too zealous in the assertion of your rights, until you have shown zeal in the performance of your coincident duties. You cannot be ignorant of what your duty *is*, in each varying condition of your environment. "The primal duties shine aloft like stars." The sense of duty is omnipresent, like the Deity. It pursues us ever; is always with us, for our happiness or misery. The whole philosophy of rational life is embraced in the phrase found in the Book of Common Prayer: "To do my duty in that state of life unto which it shall please God to call me."

Wanted

A young man answering to the following description, for a position which gives opportunity for advancement to great responsibilities.

He must not be too clever, but must not be stupid. Capacity for "catching on" and *holding* what he catches will count for more than mere smartness.

He must not watch the clock, but watch his work until the work is done the best he knows how.

He must be dissatisfied only with his own performance and continually be trying to improve on his last performance.

He must endeavor to find better ways than the old ways; must look for weak spots in the old routine and discover how best to mend them; and though his original suggestions may not be at once adopted, the habit of original thinking will establish his value as a constructive force and constantly enlarge his own executive capacity.

He must talk little; his work and example must talk instead. But he will listen closely when others talk, if their talk is worth while.

He must be ambitious to get on; must love the work for the work's sake and for the training which it gives; must look ahead for better things, but prepare for the better things by doing perfectly the thing in hand, day by day.

He must not give grudging service, but put his heart into his work. He must seem anxious to give a little more labor than he gets in wage; much more interest in his employer than his employer shows of interest in him. He must look upon the store as his personal estate: talk for it, guard it from misrepresentation, promote its welfare in every way within the range of his opportunities. And he will acquire this deep-seated interest for his own sake as well as the store's sake; for he will grow in usefulness as his devotion grows.

He must be loyal in every way to his employer, and always faithful to his own sense of duty.

The young man who answers to the above description can have his choice of a thousand situations to-morrow. He is not "crowded out"—the positions are positively begging his acceptance. Doors fly open at his approach. The world is full of the other kind, but there is never enough of this *right* kind to half go 'round. And with each coming year he will be more and more in demand; for the world's work is growing bigger and harder every day, and with each advance comes louder call for the young man who "knows how" or can learn how. There are more places of the right kind than there are young men of the right kind. J. T.

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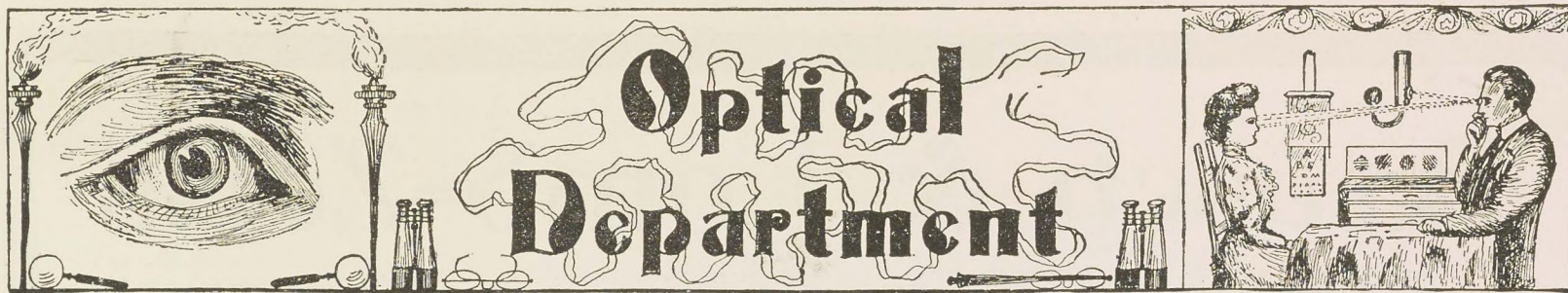
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Reviews of Current Ophthalmological Literature of the World

Ocular Gymnastics in Exophoria and Insufficiency of Convergence

The value of gymnastics in disturbances of the ocular balance is becoming recognized more and more. A clear exposition of this branch of ocular therapeutics has been given lately in the "System of Physiologic Therapeutics, Vol. VII," by Dr. W. L. Pyle. This well-known ophthalmologist points out that one of the greatest causes of muscular asthenopia is insufficiency of the convergence, with or without accompanying exophoria. The prescription of proper glasses, temporary abstinence from near work, and general hygienic and tonic treatment will suffice in most cases to bring relief from the asthenopic symptoms. When, however, these measures do not afford relief, ocular gymnastics are indicated. For minor cases the "thumb or finger exercise" is of value. This consists in exercising the convergence by drawing the thumb or index-finger gradually toward the bridge of the nose, meanwhile trying to maintain a single image of the finger. The finger should be withdrawn immediately before diplopia results. This should be repeated a dozen times at each exercise, and the method should be used several times daily. The more important method is that by graduated rhythmic exercise in overcoming successively stronger prisms, bases out. Formerly prisms of 1° to 8° strength were employed. The following is the later method suggested by Dr. G. M. Gould for developing high adducting power by exercise with strong prisms: The amount of exophoria is noted, the abduction and adduction are then measured, followed by the measurement of the convergent-stimulus adduction. This is obtained by coaxing the patient to overcome as strong a pair of prisms as possible, with bases out. It will generally be found that a pair of 8° or 10° prisms is as much as can be overcome at first; but if the exophoria is not too great, it is seldom that, after a few trials, a patient cannot fuse the image of a candle flame at 20 feet (6 meters) with this handicap. The examiner should then prescribe a pair of prisms, bases out, suiting the strength to the indications, giving slightly less than the full amount of adduction power. It is of great importance to have the prism set in a well-adjusted interchangeable prism-frame. The patient is instructed to place himself 20 feet (6 meters) from a flame, and endeavor to fuse the double image; if, as is usual, it is impossible for him to fuse at this distance, he must approach the flame until he gets the single image, then walk backward, keeping his gaze steadily fixed on the flame, until he reaches his starting point. This is much more difficult for the patient than having

some one withdraw the marked card from the near point to the flame; so that, whenever feasible, it is preferable to call in the assistance of a second person, particularly in the earlier days of the exercise. If the image is still single, the patient is told to hold it steadily so for about a quarter of a minute, then to raise the glasses and gaze at the flame with naked eyes for the same length of time, and repeat this ten or twenty times three times a day. At the next visit the strength of the prisms is increased and the exercise continued at home, and at each succeeding visit an addition of about 5° may be prescribed until the patient can, without the slightest trouble, overcome a pair of 25° or 30° prisms. Patients may be educated to overcome a combined prism-strength of over 100° , base out. An arrangement may be effected to hire the prisms and make the necessary changes for a very moderate charge, and the patient is saved the expense of buying a whole outfit of lenses that would be useless to him after a few weeks. Exercise should be continued for some time after apparent cure, to prevent relapse.

A Little Trick Valuable in Removing a Foreign Body from the Cornea

In the *Zeitschrift f. Aughkl.*, Dr. Baas, of Worms, Germany, describes a little trick which does not seem to be generally known and which he has found very valuable in removing foreign bodies from the cornea or conjunctiva. In such cases where no assistance is at hand, and where lateral illumination is necessary, the doctor tells his patient to lift the upper lid himself, but in such a manner that the patient lifts the lid of his right eye with his left hand, and that of his left eye with his right hand. In this way the patient's arm rests on his head and is out of the way, while the doctor has the left hand free for holding the lens for illumination, as his right hand handles the instruments. A further advantage is that the patient is more quiet, because he has to concentrate his whole attention on the proper position of his hand and fingers.

On Heterophthalmus

Heterophthalmus signifies that ocular condition in which one eye possesses a light iris, whereas the iris of the other eye has a dark (brown) color. Formerly this condition has been regarded as an innocent play of nature, but according to the observations of Dr. Georges Weill, in Strassburg, Germany, this view must be modified decidedly. This ophthalmologist concludes from his observations that the lighter eye mostly, if not always, suffers from an insidious inflammation of the uveal tract which frequently

brings on cataract. He believes that in heterophthalmus we have to do with disturbances of the circulation which began before birth, then become stationary, and finally show themselves again in the form of cataract and iridocyclitis.

Regarding the Development of School Myopia

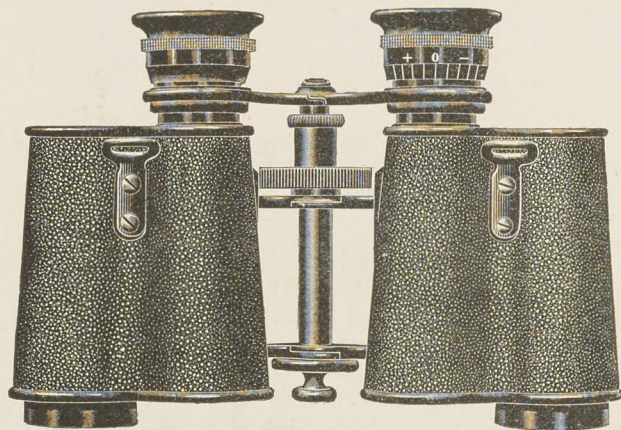
Frequently it has been asserted that the myopia of school children had its cause in the insufficient illumination and the bad print of the schoolbooks. It was hoped, therefore, that better attention to the light and the print would soon reduce the percentage of those boys who become myopic during their school life. This hope, however, has not been fulfilled. Dr. Schoute, of Amsterdam, for example, examined the schools of Amsterdam very minutely and found the daily illumination as well as the print of the books quite sufficient in almost ninety per cent. Still he found that no less than one-third of the school children had become myopic during their school years. He therefore concludes, that it is the close work in itself which produces the alarming degree of myopia and advises that the instruction should be simplified.

Some Obscure Cases of Eyestrain

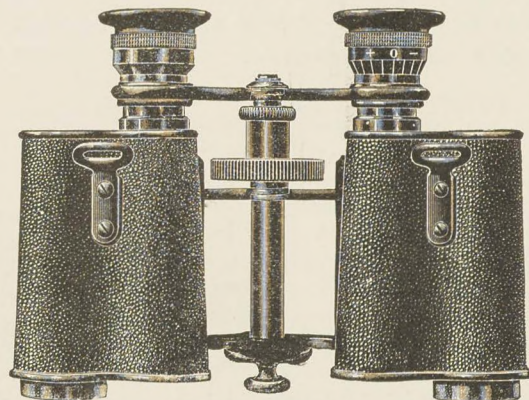
That sometimes, in spite of the best efforts of the refractionist, the patient is not relieved of his annoying symptoms, is well known to every experienced reader of these lines. Of course, that this want of satisfaction in some cases may be due to the fact that the refractionist overlooked a certain unusual defect, cannot be denied, but that this need not be the explanation in every such case, is clearly shown by the paper of Dr. F. W. Marlow, in the *New York Medical Journal*. This careful ophthalmologist reported three cases of this kind, from the study of which he drew the following conclusions:

The most careful investigation and the apparently accurate correction of all the discoverable errors may completely fail to relieve the symptoms; may, in fact, aggravate them, and yet the symptoms may still be due to eyestrain. Indeed, the fact that glasses which are apparently correct aggravate the symptoms is, I believe, in most cases evidence that the latter do arise from eyestrain, and that a latent error is present; usually an error in the muscle balance. In all the cases described, the possibility of the existence of the kind of error which was finally found to be present, was fully appreciated from the first. In the second place, I believe that lapse of time is a very important factor in the elucidation of the true nature of these cases. The action of the accommodation in neutralizing refractive errors is so automatic and persistent, that all efforts to annul it sometimes fail to be completely effective; even atropine and other powerful cycloplegics failing to bring about a complete relaxation. The natural relaxation due to advancing years often reveals a hitherto latent error. Similarly the instinctive tendency to see single and not double causes the intrinsic muscles to

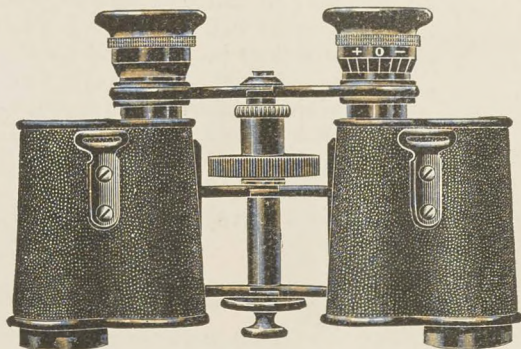
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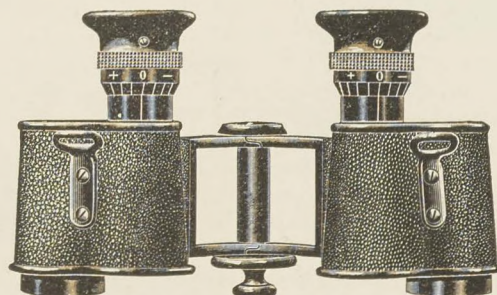
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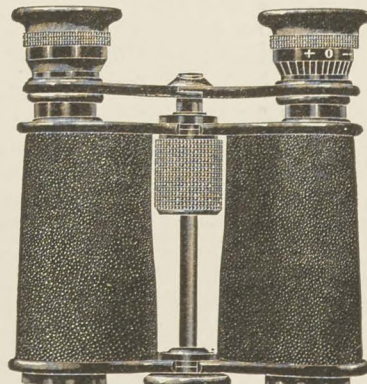


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Reviews of Current Ophthalmological Literature of the World

(Continued from page 795)

contract so as to maintain a parallelism of the visual lines. This contraction is so constantly maintained that the muscles get into a condition of tonic spasm which is extremely persistent. Just as we have a spasm of the accommodation in cases of hyperopia and astigmatism in the interest of clear vision, so we have a spasm of the extrinsic muscles in the interest of single vision, and the latter is far more difficult to demonstrate than the former. It is surprising what high degrees of error may remain latent year after year and produce a train of symptoms absolutely intractable to treatment until the manifestation and correction of these errors has occurred. I have seen some cases which have inclined me to think that not only is lapse of time the only thing which will reveal the true nature of the ocular conditions, but that old age itself is reached, in some cases, before the true condition becomes manifest.

The Angle Gamma and its Relation to Squint

There mostly exists considerable confusion about the exact meaning of the angle gamma. Casey Wood, in the Posey-Wright text-book, defines it as follows: The angle gamma is that formed at the center of rotation by the optic axis and the line of fixation. A better definition in the opinion of the reviewer would be: The angle gamma is the angle which the line of fixation forms with a line that is erected normally at the middle of the corneal surface. Any reader may at once obtain a clear idea about this angle if he takes a skiascopic mirror, or in fact any mirror with a hole in it, and reflects the image of the flame of a candle on the eye of a person sitting about a yard away from him. He will then see a small, bright corneal image, and if he tells the person to look at the hole of the mirror, he will observe that the corneal reflex, which of course lies in the visual line, will not occupy the middle of the cornea, but a position usually more or less to the nasal side. The distance between the middle of the cornea and the light reflex may be regarded as a measure of the angle gamma. Sometimes this angle may be so great as to give rise to the appearance of squint, which can be excluded only by the cover test.

In the February number of the *Ophthalmic Record* Dr. F. E. Brawley reports two such cases, together with a method of objectively measuring the angle gamma. We reprint here the essential part of that paper, but will remark right here that the values for the angle gamma here given are not the highest ones observed, for Donders had one case in which he found as much as 11.3° . It further must be mentioned that Mauthner believes that the apparent squint is observed only in such cases in which the angle gamma differs for both eyes. In his cases he, indeed, observed that the average value for the angle gamma in the right eye was 4° , while that for the left eye was only

1.50° . A similar difference exists in the two cases reported by Dr. Brawley.

The angle gamma may be either positive or negative. When positive the line of fixation cuts the cornea to the nasal side of the optic axis and the effect, when the visual axes are parallel, is that of a divergent strabismus. When negative the line of fixation passes to the temporal side of the optic axis, thus causing a deviation inward of the optic axes and an apparent convergence during parallelism of the visual axes.

Although a perimeter may be used in measuring this angle, a more practical instrument is the deviometer of Worth. This instrument permits of a measurement of the angle gamma being taken during the measurement of a deviation, so that one may note the size of this very important angle in each case without the necessity of a special device involving an extra expenditure of time.

The deviometer is constructed upon a scale of tangents to degrees at 60 cm. distance, on the principle of the Maddox scale and the Priestley

binocular and stereoscopic vision and normal muscle balance led to an examination of the angle gamma, which proved to be of the negative variety, measuring R. E. 6° and L. E. 3° .

Cases have been known where a tenotomy was performed for just such a condition. It is also possible for a positive angle gamma to cover up an actual convergent strabismus of low degree, and for a negative angle to mask a slight divergent strabismus.

These would seem to be sufficient reasons for adopting this as a routine measurement in all cases of strabismus, especially as it can now be carried out with practically no extra trouble or loss of time during the measurement of a deviation with the deviometer.

Astigmatic Changes

In a recent number of *American Medicine*, Dr. Julius Pohlman, of Buffalo, N. Y., reports his personal experience about the change that may occur in the astigmatic refraction of the eye. His study is based upon eyes which were examined and re-examined by him during a period of ten years, the re-examination occurring from one to ten times, at intervals varying from six months to five years. All eyes below the age of fifty years were examined under a cycloplegic. No doubtful cases were counted, but only those in which a definite change could be measured and in which the patient reported satisfactory improvements from the change of glasses. He designated all astigmatic conditions in which the axes were parallel or formed an angle of 90° or 180° as regular, whereas, all other cases were called irregular.

The doctor paid no attention to changes in the accompanying hypermetropic or myopic refraction, as every refractionist knows and recognizes them.

Three series of cases were examined. Each series comprises 300 persons, who came back for a re-examination, and it is very interesting to remark that in each series the proportion of consecutive cases to those re-examined was almost exactly the same—that is, one patient among five returned for re-examination.

The proportion between male and female patients among the 4500 cases studied, was 62 females to 38 males; i. e., about 3 women to 2 men. Among the 900 re-examined cases were 573 females and 327 males, 64 to 36, practically the same proportion. Taking the three sections separately, the first 300 gave 190 females to 110 males, 63 to 37; the second 300 gave 197 females to 103 males, 65 to 35; the third 300 gave 186 females to 114 males, 62 to 38.

Among the re-examined 900 cases were 682 hyperopes and 218 myopes, 76% of the former to 24% of the latter. Divided again into the three sections, the first 300 gave 230 hyperopes to 70 myopes, 77% and 23%; the second 300 gave 231 hyperopes to 69 myopes, 77% and 23%; the third 300 gave 221 hyperopes to 79 myopes, 74% and 26%.

Among the 284 of the re-examined 900, 32% showed changes in their astigmatic corrections, 1 case in every 3 $\frac{1}{2}$. These 284 cases presented 171 females and 113 males; i. e., 60% to 40%. There

(Continued on page 799)



Smith tape. An electric lamp, $5 \times \frac{3}{4}$ inches, situated at the zero of the scale, gives a very clear linear corneal reflex. A push-button controls this lamp and allows of a very rapid flashing on and off of the light, which is especially valuable in examining children, whose gaze would otherwise be attracted from the fixation point by longer continuance of such a bright light.

The patient sits at the end of a 60 cm. tape and with one eye covered looks with the other at the marker which slides along the reversible arm bearing the scale. The light is flashed on from time to time, as the marker is gradually moved along the arm and away from zero, until the light reflex appears in the exact center of the cornea. The position of the marker now shows in degrees the size of the angle. A lighted wax taper held before the marker may be used as a fixation point for children. The observer must of course note the position of the corneal light reflex from a position at the zero of the scale.

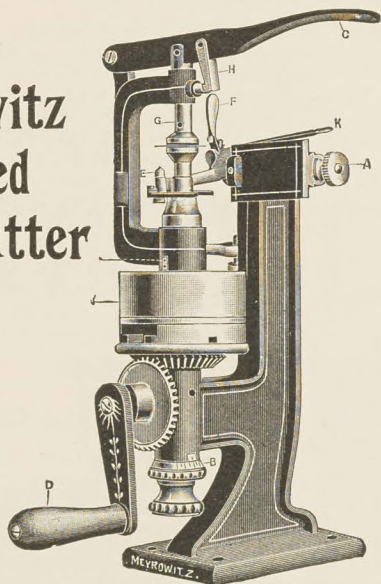
Case 1. M. G., aged seventeen years. Poor vision with asthenopic symptoms, though not marked. Had been told that she squinted. Refraction:

R. E. $+3.5$ cyl. ax. 80° \ominus 0.5 sph. = V. $\frac{6}{12}$.
L. E. $+4.0$ cyl. ax. 100° \ominus 0.5 sph. = V. $\frac{6}{12}$.

All tests for strabismus negative. Patient was then found to have a normal muscle balance and full binocular and stereoscopic vision. Angle gamma, however, measured in R. E. 8° and L. E. 9° instead of the usual 4° to 6° . The accompanying photograph, kindly furnished by Privat. Doc. Dr. Heine, shows the apparent divergence.

Case 2. L. K., aged thirteen years. Always short-sighted. An apparent convergent strabismus was noticeable across the room. All tests for strabismus negative. Refraction was -9.0 sph. in each eye, giving a vision of $\frac{8}{20}$. The presence of

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Reviews of Current Ophthalmological Literature of the World

(Continued from page 797)

were among them 205 hyperopes and 79 myopes, 72% of the former and 28% of the latter.

Among the 900 re-examined cases, classified according to age, the doctor found:

| | |
|-----------------------------------|-----|
| Below 10 years | 59 |
| Between 10 and 20 years | 166 |
| Between 20 and 30 years | 276 |
| Between 30 and 40 years | 182 |
| Forty years and over | 217 |

In the 284 cases which showed a change in the astigmatic refraction the age was as follows:

| | |
|-----------------------------------|------------|
| Below 10 years | 22 or 37% |
| Between 10 and 20 years | 45 " 28 " |
| Between 20 and 30 years | 100 " 36 " |
| Between 30 and 40 years | 57 " 31 " |
| Forty years and over | 60 " 28 " |

It is remarkable that the different periods of life show such small differences with regard to the change of astigmatism, and it seems that we have to give up the old idea and to accept the statement of the author that the different ages show changes in the astigmatic refraction with about equal frequency. These changes were observed to be as follows:

1. Increase of astigmatism, 142 cases, 50%.
2. Change of astigmatic axis, 89 cases, 31%.
3. Increase of astigmatism and change of axis, 21 cases, 7%.
4. Change of regular to irregular axis, 16 cases, 6%.
5. Change of irregular to regular axis, 16 cases, 6%.

The author recapitulates his conclusions in the following lines:

From a study of 900 cases examined and re-examined, nearly every third showed changes in the astigmatism; 50%, half of all the changes found, presented a simple increase in the quantity of astigmatism without any change of axis; 31% gave merely a change of axis; these two combined accounted for 81% of all the changes recorded. The other 19% were almost equally divided between (1) increase of astigmatism plus change of axis; (2) change of regular to irregular; and (3) change of irregular to regular axis.

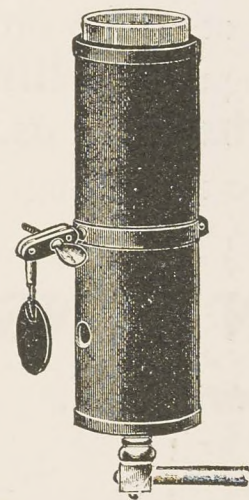
A Shade to Protect the Examiner's Eyes from the Bright Light when Working with the Source of Light Close to the Mirror in Skiascopy

There can be no doubt that in skiascopy better results may be obtained with the source of light close to the plane mirror than with the light over the head of the patient. This was clearly pointed out years ago by Dr. Edward Jackson. At the same time it cannot be denied that if the source of light is so near to the examiner's eyes the bright light flashes into his unused eye and produces more or less fatigue and dazzling. In a recent number of *The Ophthalmic Record* Dr. Mark D. Stevenson, of Akron, Ohio, calls attention to this fact and expresses his belief that many examiners have given up this method on this account. To avoid this fatigue from dazzling he has constructed a little shade, the rationale

and details of which he describes in the following lines:

If a book is held five or six inches in front of a five or ten millimeter opening in the light screen or chimney, it is easy to see what a large area of light there is on the examiner's face in making this test. In order to place the mirror in the central brightest light, his unused eye must also be in the light.

If the examiner places the light screen or chimney on the opposite side to the eye used in making the test, so that the light will pass across his face at an angle of about 45°, he can shade his eyes by holding a large mirror in the unused hand two or three inches from the source of light, and still place the other mirror in the central bright light.



This shade, as illustrated in the diagram, prevents the bright light from passing to the examiner's eyes, which are now both in its shadow. The mirror with which the test is made being held in front of the eye, near the edge of the shade, is situated in the bright central light. The shade is supported by a ball and socket device admitting of easy adjustment, and can be quickly placed on any of the cover chimneys in use. Its both sides may be a dull black, but the writer prefers to have a mirror on the side next the cover chimney which, when properly adjusted, reflects light on the trial case, so that the desired lenses may be quickly found. The device is very easily adjusted and, unless the examiner varies his distance from the light, may be used for weeks at a time without changing its position.

The examiner places the eyes in its shelter and his mirror in the bright light. The writer has also had a cheaper and simpler shade made which cannot be so readily adjusted but gives the same desired results.

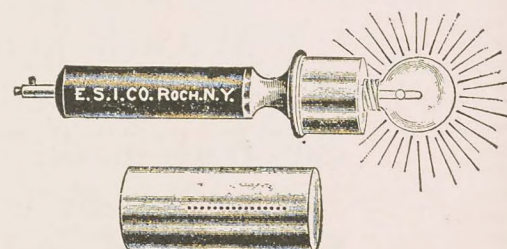
An Ophthalmodynamometer

Literally the word ophthalmodynamometer signifies an instrument which measures the power of the eye. Landolt first proposed the word for an apparatus of his own, by means of which he could determine the power of convergence and accommodation of the eye. His instrument consisted "of a cylinder blackened on the outside, which can be fitted on a candle of ordinary size. The cylinder has a vertical slit about a third of a millimeter in breadth, a series of fine openings which form together a vertical line, and a circular aperture about one millimeter in diameter. The slit and the openings are all covered with ground glass. When the candle is lighted they constitute luminous objects of fixation." This instrument certainly is used very little in this country, probably because the use of a candle in the office is always more or less annoying. To obviate this difficulty, Dr. C. A. Wishart, of Pittsburg, Pa., has modified the instrument so that the electric light may be employed. He uses it very much and describes the modification of the Landolt instrument as follows:

I find daily use for one which I have adapted to the electric-lighting current, but which may be used with a storage or dry-cell battery, where the light current is not available. In connection with the street current and a rheostat is a small 10-volt lamp with a handle (Fig. 1), and over this is slipped a metal cylinder (Fig. 2), closed at the

top and blackened on the outside. The cylinder is provided with a vertical line of small openings, about one-third of a millimeter, placed about one-third of a millimeter apart, also with a single circular opening two millimeters in diameter. Instead of the ground glass I have placed inside of the metal cylinder a cylinder of white cardboard.

To determine the maximum of convergence the vertical line of small openings is used, and starting at a point one or more meters distant from the patient's eyes, the instrument is carried toward his face in the median line; when the near-point of



convergence is reached (or more correctly, as soon as it is passed) the line is doubled (crossed diplopia).

To determine the near-point of accommodation the same line of small openings is used and gradually carried toward the patient; when the limit of accommodation is passed, instead of distinct points of light, it will appear as a vertical line of overlapping diffusion circles.

When investigating the relation between accommodation and convergence, Landolt says: "When convergence and accommodation harmonize, the patient will see single and distinctly the row of luminous points as such. If convergence be at fault, the line will appear double, the diplopia being crossed if there be insufficiency, or homonymous if there be excess. Should there be a failure in the optical adaptation the points will appear blurred."

The reviewer must confess that though the substitution of the electric light for the candle certainly is an improvement, still there is hardly any need for such instrument at all. A well-defined straight line, on a piece of white stiff paper, will answer very well to determine the near point of convergence and even that of accommodation. At least in his own practice he has found this simple contrivance perfectly sufficient.

The Largest Searchlight

The largest searchlight in the world, manufactured in Germany, is now in St. Louis, and is to crown the dome of the Woman's Magazine Building, on the World's Fair grounds. The lens is seven feet across and will reflect a light of 6,000,000 candle power that can be seen 200 miles from St. Louis, it is asserted by the manufacturers. It was the intention of the company to install the light secretly, and in the middle of the night flash it across the city.

The light will be one of the features of the World's Fair. The company guarantees that it will throw letters against the sky that can be read 150 miles away. World's Fair days and events of unusual interest will be heralded abroad in this novel fashion. No searchlight on the World's Fair grounds will compare with this giant lamp, it is claimed.

It will be installed on the highest point near St. Louis. The dome of the building is 135 feet from the ground, and the ground at that point is 116 feet above Broadway. The lamp is mechanically arranged so that at the touch of a key it will recede into the dome and be completely covered. The operation is hydraulic. It can be directed at any angle in every point of the compass by a simple manipulation of keys from the office.

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An Exposition of the Principles of Refraction in the Human Eye Based on the Laws of Conjugate Foci

(Continued. Part IX.)

With 19 original illustrations.

By SWAN M. BURNETT, M. D., Ph. D., Professor of Ophthalmology and Otology in the Medical School of the University of Georgetown, Washington, D. C.
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Determination of Astigmatism by Skiascopy

The movement of the bright spot on the fundus being necessarily in the same plane as the mirror movement (at right angles to its rotation axis), it is only the refraction in a single meridian corresponding to that plane that is determined in skiascopy. As it is possible, however, to make the axis of mirror rotation correspond to any meridian of the refracting system it is desired to examine, it is easy to determine separately the refraction in any two meridians at right angles to each other as we have it in astigmatism. To this end it is only necessary to find the points of reversal separately for the meridians of least and greatest refraction (always at right angles to each other), to know the value of the focal interval of Sturm. Knowing, then, the far points of the two meridians, the strength of the cylindrical lens required to bring them together marks the degree or amount of astigmatism.

Example:—Meridian with its axis at 90° requires $+3$ to bring about a reversal at 1 M., that with its axis at 180° requires a $+2$. There is, therefore, 1 D. of H., with its axis at 180° , and 2 D. of H., with its axis at 90° . The astigmatism is therefore $+2 - 1 = +1$ D. axis 90° , with a general H. of 1 D. common to both meridians (compound hypermetropic astigmatism).

Determination of Astigmatism by the Ophthalmoscope

In the determination of general ametropia by means of the ophthalmoscope (direct method), we saw that when the two retinae were brought into the positions of conjugate foci, and the details of the fundus of the observed eye were pictured distinctly upon the retina of the observing eye, the ametropia was abolished, and the focus of the lens through which this was effected marked the far point of the observed eye (the observing eye being emmetropic). In astigmatism, there being two foci, corresponding to the meridians of least and greatest refraction at right angles to each other, it is necessary to determine the conjugate focus or far point of each of these meridians separately. This is done by taking as the objects of observation, the retinal vessels running in various directions across the background of the eye. In astigmatism the vessels whose general course corresponds to one direction will be seen more distinctly than those running in a direction at right angles to this.

These directions will correspond to the axes of the two principal meridians, respectively. It now remains to find the lens through which the vessels corresponding to the axis of each of these meridians are seen most distinctly, separately, and the difference in their power will express the amount of astigmatism.

Example: The vessels running in a vertical direction are seen most distinctly with a $+3$ D., while those running in a horizontal direction are seen distinctly with a $+1$ D. There is then H. = 3 D. with the axis at 90° (vertical), and H. = 1 D. with the axis at 180° (horizontal). There is then a general H. = 1 D. and an astigmatism of $3 - 1 = 2$ D. axis 90° ; compound hypermetropic astigmatism $+1 \text{ C} + 2 \text{ ax. } 90^\circ$.

Formulae for Conjugate Foci

In order that the action of these laws governing the refraction of the eyes, in the various manners described in the foregoing thesis, may be brought together under a general mathematical formula applicable to all possible conditions, we add an exposition,

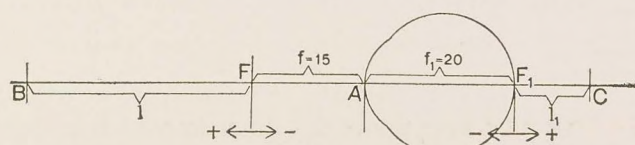


Fig. 18

based on the simple formulae for conjugate foci given by Gavarret, (*Les images par reflexion et refraction*, Paris, 1866). In this treatment we accept as fixed values the optical constants of the reduced eye of Donders, where the posterior principal focus for parallel rays AF_1 (Fig. 18), $= f_1 = 20$ mm., and the anterior principal focus $AF = f = 15$ mm. B and C indicate the positions of other conjugate foci, and the relation of these to the principal foci F and F_1 have the values l and l_1 . The varying values of l and l_1 are counted from F and F_1 in such manner that all values of l to the left of F are considered as positive (+), while all values to the right of F are negative (—). All values of l_1 to the left of F_1 are counted as negative (—), while all values to the right of F_1 are counted as positive (+). It will be seen that F_1 marks the position the retina occupies in emmetropia, being at the posterior principal focus for parallel rays.

The general formula for determining the values of l and l_1 is,

$$ll_1 = ff_1. (1)$$

The values of f and f_1 being fixed, any change in the value of l must be associated with a change in the value of l_1 , and *vice versa*, and in accordance with the following formulae, deduced from (1):

$$l = \frac{ff_1}{l_1} (2), \quad l_1 = \frac{ff_1}{l} (3).$$

Examples: $l = 0$. Then $l_1 = \frac{ff_1}{l} = \frac{15 \times 20}{0} = \frac{300}{0} = \infty$; that is, when B is at the anterior principal focus F , the conjugate focus, C , is at infinity. Similarly when $l_1 = 0$, C being at F_1 , by formula (3) B or the other conjugate focus is found at infinity.

When $l = \infty$, $l_1 = \frac{300}{\infty} = 0$. B then recedes to infinity and C advances to F_1 .

When l is positive, to the left of F , l_1 is also positive and to the right of F_1 , and *vice versa*. When, however, l_1 is negative, and to the left of F_1 , l is also negative and to the right of F , and *vice versa*, and both are on the same side of the principal plane A .

Examples: $l = 200$ mm., $l_1 = \frac{300}{200} = 1.5$ mm., C is then positive and 1.5 mm. to the right of F_1 and, $20 + 1.5 = 21.5$ mm. behind A . Conversely when C is 21.5 mm. behind A , B or the far point will be 200 mm. in front of F , or 215 mm. in front of the principal plane A . This will correspond to the far point of a myopia of 4.5 D.

When $l_1 = -1$, C being 1 mm. to the left of F_1 , $l = \frac{300}{-1} = -300$ mm.; B , the far point, will then be 300 mm. to the right of F , that is, $-300 + 15 = -285$ mm. behind A , which represents the position of the far point of 3.5 D. of H.

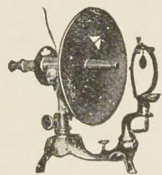
When $l_1 = -20$ mm., C will find itself at A , the principal plane, and l will be $\frac{300}{-20} = -15$ mm. Since FA is equal to 15, B will find itself also at A , and the image and object will be superposed.

It will be seen, from the examples given, that a variation of 1 mm. in the position of C in its relation to F_1 , the position of the retina in E , brings an alteration in the position of the other conjugate focus or far point of about 3.5 D. When l_1 is positive, this far point will be in front of the eye, M.; when it is negative the far point will be behind the eye H.

(THE END)

A New Method of Coloring Photographs

From a good negative, the simpler the subject the better, print on a piece of rollable film exactly as for a lantern slide; one or two trials will show to just what density the positive should be. Select a suitable backing paper of any delicate shade, although for many subjects white does as well as any kind of tint, and press them against one of the panes of the window, the film next the glass. On the paper draw roughly a pencil outline of the subject, as a guide to the application of the color, which may be laid on the paper with a free hand, the photograph giving all the beautiful shading. Bind them together, glass in front and cardboard behind, to keep the film flat, and the color will be found to show through the film with all the beauty of a painting by a good technical artist.



The Ophthalmometer

is the most necessary of all instruments for the refractionist to have. It gives information in regard to astigmatism that can not be gotten in any other way, saves time and lessens the possibility of error.

READ

the following extract from a book review published in the *New York Post Graduate Journal*, for March, 1904:

"To our mind the ophthalmologist who does not usually *rely* upon this instrument (the Ophthalmometer) * * * * * is like the fishermen on the Banks of Newfoundland, who go to sea without a compass or a sextant and rely upon dead reckoning."

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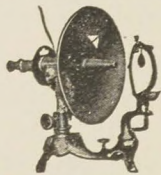
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Optical Questions and Answers

Subscribers wishing inquiries answered in this department must send name and address—not for publication, but as an evidence of good faith. Questions will be answered in the order in which they are received. No attention will be paid to anonymous communications.

To enable us to answer questions satisfactorily and give proper advice in the management of cases submitted to us, it is essential that we be furnished with a complete history of each case and accurate information on the following points:

1. Age. (If not possible to give exact age, always approximate).
2. Have glasses been previously worn? How long and what number?
3. Visual acuteness of each eye, and what improvement glasses afford.
4. Range of accommodation (without glasses and with them).
5. Evidence of astigmatism (as shown by radiating lines).
6. Test for muscular insufficiency.

"G. M. W."—*Woman, aged fifty-seven years, had been wearing for several years R. E. — 2.75 D. S., L. E. — 4.75 D. S.; recently not satisfactory. N. V.: R. $\frac{1.5}{200}$, L. $\frac{1.5}{200}$. Pin-hole, R. $\frac{1.5}{200}$ fair, L. $\frac{1.5}{200}$ good. Dist. test with lenses, R. — 5 D. S. = $\frac{1.5}{200}$; L. — 8 D. S. = $\frac{1.5}{200}$. Gave for reading glasses, R. — 1.50 D. S.; L. — 4.50 D. S. The distance lenses were satisfactory; but could not use reading lenses. She went to another optician, who changed the reading lenses to R. — 1 D. S., L. — 3.75 D. S., which are giving her satisfaction. Where was my mistake? How should I have known how much to reduce the distance lenses to make reading?*

The rule for determining the reading glasses in myopia in young people is as follows: Subtract from the full correction of the myopia those glasses the focus of which represents the distance at which the patient desires to read or write. And as thirteen inches is considered a favorable reading distance, and as 3 D. represents this distance, therefore the distance correction is diminished by three. Then when the patient reaches the age of forty or over, allowance must also be made for the presbyopia, which would naturally be present at that particular age. These are the rules for the optometrist's guidance, who, however, must use his own judgment and perhaps modify them in each individual case.

The error that was made by our correspondent was that he did not make these allowances, and therefore his glasses were too strong. If the writer was correcting this case he would deduct 3 D. for the reading distance and 2 D. more for the presbyopia, and then try whether the glasses thus found would be satisfactory. This would leave plano for R. E. and — 3 D. for L. E. Each eye must be tried separately; can the right eye read well without any lens, or does a weak concave lens improve? Compare also the effect of a weak convex. Can left eye read well with the — 3 D.? Does the addition of a — .50 D. improve or make worse? Does the addition of a + .50 D. improve or make worse? By following out some such plan, the proper reading glasses can soon be determined.

"F. H. K."—*I have a client whose age I should say is about twenty-eight. I tested her eyes by means of trial case, using the fogging method and found manifest hypermetropia of + 0.75 and with the Maddox rod it took a 6° prism to bring streak of light to candle flame. V. = $\frac{20}{20}$. I examined the glasses she had been trying to wear and found them to be + 0.75 sph. She said that she could not wear them and so came to me for something better. I gave her a pair of simple prisms, base out, of 1° over each eye, which she reports to be perfectly satisfactory and very much pleased with them. But, as I believe her to have a chronic spasm, my giving prisms has been bothering me. Do you think the wearing of prisms would in any way injure her eyes? Can a spasm be measured with an optometer without asking client her age, as in dynamic skiascopy.*

The 6° of esophoria would tend to corroborate our correspondent's belief that his patient has spasm of accommodation. Such being the case he should have made an effort to increase the strength of her convex lenses instead of taking them off altogether. If prisms seemed necessary for the

comfort of the patient's eyes, they could have been combined with the convex spheres. The prisms alone, bases out, are not likely to allay the spasm, in fact they are more apt to increase it. We are not told the symptoms of which patient complains, and hence we do not know just what is expected from the glasses; but in a case like this where the existence of hypermetropia is undisputed, convex lenses should not be omitted. In the determination of the question as to whether spasm is present a knowledge of the age is not necessary so long as patient is on the sunny side of presbyopia.

In order that a correct and definite understanding may be had of each case submitted, it is necessary that correspondents should give ALL the particulars asked for at the head of this page.

"C. J. M."—*Kindly advise what correction you would suggest in the following case: Gentleman, aged fifty-eight, farmer; general health only fairly good. Nasal catarrh; tear duct stopped, causing tears to run down cheek, also causing pains above the nose or between the eyes when exposed, sometimes lasting two or three days. Has worn glasses for reading for twenty years. The last pair, + 1.75 D. sph., bought over the counter. Subjective examination: Visual acuteness without glasses, twenty feet O. U. = $\frac{20}{20}$ but not good; O. D. = $\frac{20}{20}$ not good; O. S. = $\frac{20}{20}$ not good. Pinhole no improvement. Visual acuteness with glasses very little improved: + 1 D. sph., O. U. = $\frac{20}{20}$ but not good, only one or two letters readable. Cylinders, + or —, no benefit with or without sph. Evidence of astigmatism very slight; thought lines blackest two and three O. D. and 12 O. S. No corneal astigmatism noticeable with keratoscope. Accommodation without glasses reads 2 mm. letters P. P., O. U., ten inches; P. R., thirty-four inches. Improved with + 3 D. sph., O. U., $\frac{34}{34}$ mm. letters P. P., seven inches; P. R. sixteen inches, but it had an unfamiliar appearance, so I asked him to look at the blocks for a few minutes. He stated that they were all the same blackness but the lines seemed to vary; the lines in the right-hand block with O. D. were zigzag, and with O. S. just the reverse in the left-hand block. I placed a 2° prism, base up, over O. D. and 3° prism, base up, over O. S. This corrected the zigzag and also removed the peculiar feeling that the + 3 D. sph. produced.*

As the patient lives in the country and is very anxious for glasses, I fitted him with + 3 D. sph. for O. U. and asked him to call again in six to eight weeks, or sooner. Sphincter muscle action, diminished O. D. $2\frac{1}{2}$ mm., dilated O. D. 4 mm.; diminished O. S. $2\frac{1}{2}$ mm.; dilated O. S. 4 mm.

If this gentleman has a marked and troublesome case of nasal catarrh he should be treated for it. He should also have the operation performed for obstruction of the lachrymal duct, and then he would be in proper condition for our correspondent to obtain the best results from glasses. Otherwise, as long as these troubles continue, there are no glasses that will be entirely satisfactory. If no corneal astigmatism is present, that is, if both vertical and horizontal meridians have same curvature, then astigmatism against the rule is probably present, because normally the vertical meridian of the cornea has a sharper curvature than the horizontal. Therefore, in this case, we think a convex cylinder would be accepted with its axis horizontal.

We are at a loss to understand why prisms were placed over both eyes bases up; they would simply displace the images of both eyes downward. Of course, the one prism being stronger than the other would cause a slightly greater displacement. Practically, the conditions are the same as if a 1° prism was placed over O. S. base up. Inasmuch as these prisms corrected the zigzag and made vision more comfortable, there is presumably 1° of right hyperphoria. But why did not our correspondent use some of the well-known muscle tests, and thus determine if any imbalance existed, whether any exophoria or esophoria was revealed, or any hyperphoria, making the examination first at a distance and then at the reading point? In

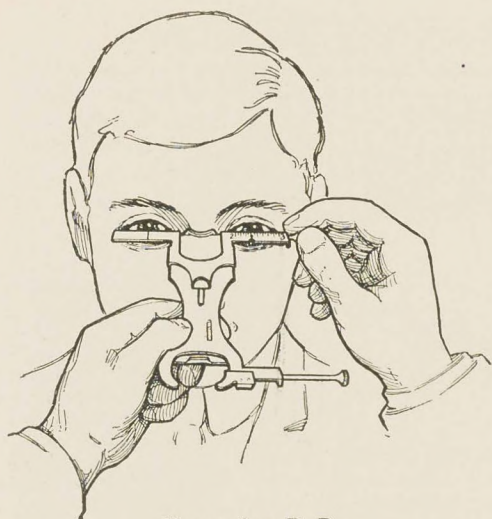
this way he would have been able to prescribe prisms scientifically if any were needed. Without any definite information on the muscle balance, we would say that if any prisms were combined with the + 3 D., they are more likely to afford relief if placed bases in than vertically.

"G. W. M."—*To-day I had a patient, an old lady, say, about sixty-five, who had been wearing — 2.75 for distance. On examination, the result was beyond me, and I now appeal to you. I give you the diagnosis as follows: L. E.: Can read without glasses at three inches; everything a blank without glasses beyond three inches; can see for distance with — 2.75. What shall I give her for reading? R. E.: Everything "on a drunk" at three inches, this without glasses; everything a blank beyond three inches, with or without glasses of the — 2.75. What shall I give her for distance? What shall I give her for reading?*

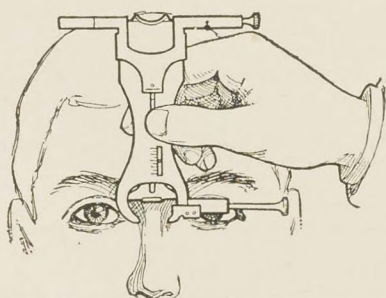
Our correspondent has failed to give us the definite information necessary for an intelligent conception of the case. We must have some idea of the amount of vision afforded by the — 2.75 D. lenses. If this is a case of myopia, we are inclined to think it is much greater than indicated by the lenses mentioned. The first thing to be done is to ascertain the acuteness of vision at twenty feet. If the patient is unable to name any of the letters at this distance, then let her approach to fifteen feet, to ten feet, or even to five feet. After this the pin-hole disk should be used to determine if the vision is susceptible of improvement, and if so, to what extent. Then may come the test by the trial case, unless our correspondent is accustomed to use the retinoscope, which would quickly show the condition of refraction and the approximate amount of error.

"L. G. C."—*Young lady, dressmaker, age thirty. June 25, 1901, eyes tested by one of the leading oculists of this city and given the following correction: O. D. — 25 cyl. axis 180°; O. S. + .25 cyl. axis 180° for distance. For reading O. D. + .50 cyl. axis 180°; O. S. + .75 cyl. axis 180°. She wore this correction with poor satisfaction until September 6, 1902, when she came to me for examination. I gave her the following correction: O. D. — .25 cyl. axis 180°; O. S. + .25 cyl. axis 180°. Would not accept a plus cylinder. With the Maddox rod it took a 12° prism base out to bring the streak of light through the flame. She has worn this correction until the present time with good results as far as vision is concerned, but eyes pain through the center of the eye whether she uses them constantly or not for near work. Cannot get along without the glasses. Re-examining, her visual acuteness O. D. $\frac{20}{20}$, O. S. $\frac{20}{20}$. With O. D. + .25 cyl. axis 90° $\frac{20}{20}$, O. S. + .50 cyl. axis 90° $\frac{20}{20}$, but blur a little. Punctum proximum, without glasses, O. D. five inches; O. S. five and one-half inches. It takes a 16° prism base out to bring the streak of light through the flame with the Maddox rod.*

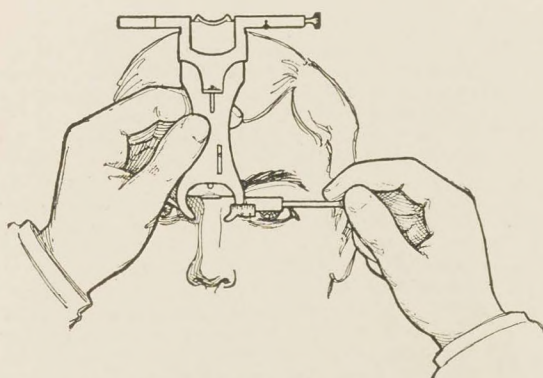
In view of the poor satisfaction the patient has had with her glasses, we would suspect the astigmatism to be hypermetropic instead of myopic; which suspicion seems to be justified by the last examination made by our correspondent. An error of this kind is of frequent occurrence on account of spasm of accommodation which is so likely to be present and which will make a case of hypermetropic astigmatism appear to be myopic. The presence of esophoria would also point towards a hypermetropic condition of the refraction. If the convex cylinders fail to afford relief after a patient trial, then the muscular anomaly should receive attention. We would suggest that a 3° prism be combined with the cylinder over each eye base out; if no improvement, increase to a 4° over each eye; if this does not suffice then 5° over each eye. If the patient still continues to suffer, then a tenotomy should be considered, or some form of galvanism to strengthen the external recti muscles. The patient should be advised not to overtax her eyes.



Measuring P. D.



Measuring Height.



Measuring Base.



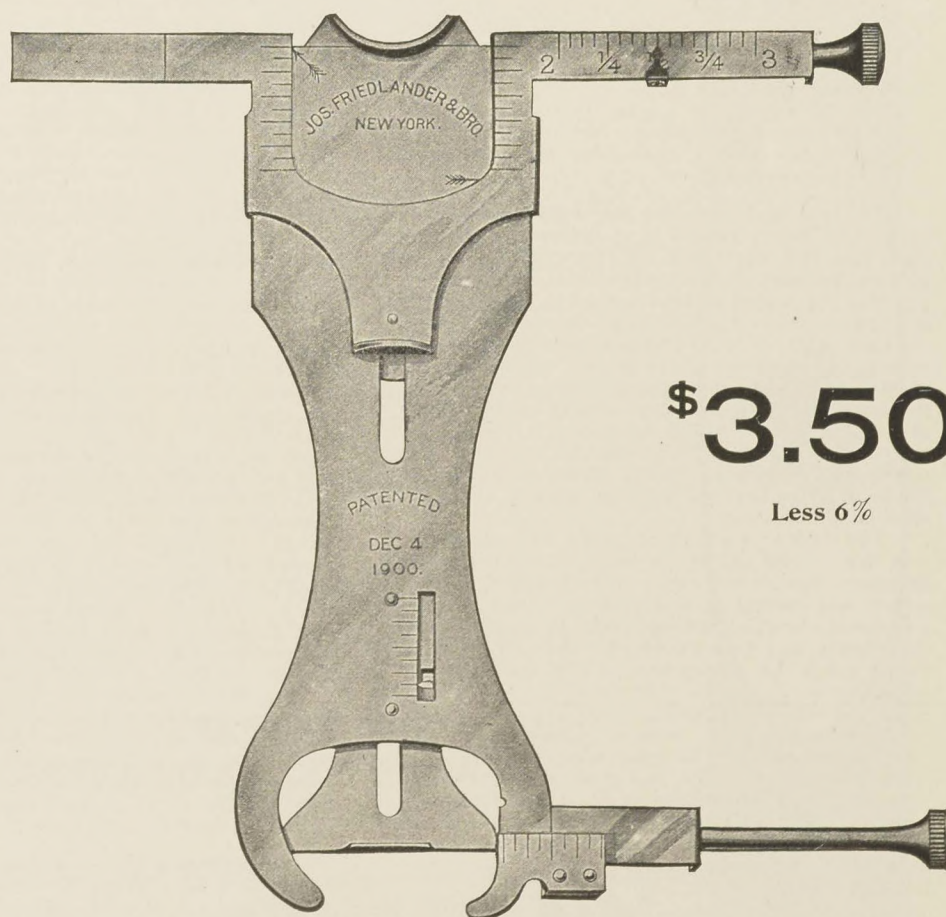
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The Optical Treatment of Concomitant Esotropia

Paper read before the London Optical Society by WM. ETTLES, M. D., Ch. M.

(Continued. Part IV.)

Method of Priestly-Smith

The method I generally employ is that of Priestly-Smith, of which there are several imitations, but none so good as the original one. A tape one meter long is provided with a ring at each end. The patient holds one ring against his temple, the operator holds the other end with the mirror; a second tape, graduated in tangents to degrees, or meter-angles, slides through the fingers of his other hand, the movement of which is followed by the better eye. As soon as the corneal reflex of the deviating eye is central, the measure is read off.

Maddox's method is identical with this. Instead of following the hand, the eye reads figures denoting tangents to meter-angles until the observer finds the central corneal reflex.

Measurement by the perimeter, introduced by Javal, is still in vogue, but is open to several objections. To begin with, the operator's head gets in the way, and it is consequently impossible to measure small angles, and, besides, the apparatus is clumsy and difficult to adjust.

Charpentier tried to get over the difficulty of small angles by placing a candle at the point of fixation, and noting the point on the arc where the reflex was central—the axis of the eye would be half the angle noted, because L of incidence and reflexion are equal. It, in its turn, is open to the objection that the light reflex is projected on the caustic curve of the cornea, because of its spherical aberration.

Measuring Adult Esotropes

The old linear methods have quite gone out of use; one, however, meets with these curiosities. The most popular was that of Sir William Lawrence, a curved ivory plate marked in $\frac{1}{12}$ of an inch, which was applied to the lower lid of the deviating eye. The zero of the scale was central, and corresponded with the center of the pupil if the eye was straight. The adversion of the eye was then noted by reading off the position of the pupil center. I repeat that in the measurement of esotropia no method is so simple and accurate as that of Priestly-Smith.

To measure the vision of adult esotropes is quite a simple matter. We simply place the patient in front of Snellen's type and ascertain the acuity for each eye. I would, however, suggest the desirability of really closing the better eye when the esotropic one is being tested. I never now trust the trial frame, but exclude the eye with an eye-shade. I once came an awkward cropper on this very point. A medical man, who was the habit of referring a good many cases to me, sent his son who had esotropia for treatment. One eye was amblyopic and I directed orthoptic treatment. A year after he came and I wrote a glowing letter to his father, stating that his vision had improved far beyond my anticipations. After six months he came again with a note to the effect that the vision seemed unsatisfactory.

I used the eye-shade and was horrified to find that the vision was exactly where it was when I first saw him. Obviously, he had on the second occasion looked past the occluding disk. Of course, I had to explain that the good result was a mistake on my part; but it was a serious mistake for me, as since then I have had

no more cases from that source. I therefore would advise you to exercise great care in these cases lest a like experience should befall you.

A Children's Test

Worth has introduced a method for testing children too young to read, by means of a series of ivory balls, varying in diameter from $\frac{1}{2}$ inch to $1\frac{1}{2}$ inches. These are rolled on the floor at a distance of six feet. The little patient, wearing a shade over the better eye, runs after these, and thus, by the size of the balls seen, some relative estimate can be made. I have been unable to regard them, however, as in any way the equivalent of Snellen's type.

You all know that a patient who can only read $\frac{6}{18}$, *e. g.*, could say how many letters there were in the $\frac{6}{6}$ line, although he could not read any of them. The whole letter subtends an angle of $5'$ at the eye at the distance they should read, but the individual lines of the letter subtend only $1'$. So in the $\frac{6}{6}$ line, the $\frac{6}{18}$ patient can see the $5'$, but not the $1'$.

Hence, a child who could see an ivory ball equaling a $\frac{6}{6}$ letter at 6 meters, could not be regarded as having an acuity of $\frac{6}{6}$. Again, an object in movement is far more readily distinguished than one at rest, *e. g.*, in scouting the horses are picketed with the heads towards the enemy's lines, so that the waving of the tail may not be seen, as it is much easier to see the moving tail than the still horse.

I have endeavored, in a work of art, to arrive at something like an approximation to Snellen's type. It represents an object familiar to little ones, but which, I fear, requires some explanation to you. It is a figure of Mr. Punch, so dear to all infants, and that figure can only be recognized as his by the head, which, at 60, subtends 5 m., being equal to $\frac{6}{60}$, and its lines subtending the same angle as Snellen's type. The same holds good of the other points, thus the baby's face = $\frac{6}{36}$, the bottle $\frac{6}{24}$, the three legs $\frac{6}{18}$, the crown $\frac{6}{12}$, the hat $\frac{6}{9}$, and the moon $\frac{6}{6}$; all the lines are exactly the same thickness as Snellen's.

I place this picture at 6 meters and say, Who is that? If successfully answered, I ask questions in order: What is he carrying? What has the baby got in its hand? How many legs has Mr. Punch? What has he on his head? What is on the baby's head? Where is the moon? Thus, I get a comparative result. If he cannot be distinguished, I bring him nearer until he is; then, in recording, I say Mr. Punch to crown = $\frac{6}{12}$.

Treatment of Esotropia

The keynote of treatment is this: We must reverse the processes by which esotropia has manifested itself, and, in optical treatment, we have four separate means at our command, all of which have to be used.

1. Correction of the Hypermetropia.—This is the most important measure. The correction must be very exact. The process I always adopt is first to register the visual acuity by the Snellen distance type, or, if the patient is too young, by the "Punch" test. Next, I order atropine to be placed in each conjunctival sack of a strength of four grains to the ounce, four times daily for four days. It is useless to order the sulphate, the pure neutral alkaloid must be used, as this alone is soluble in vaseline.

A small portion, the size of an oat seed, is inserted on the point of a conical glass rod. The ointment has many advantages over the aqueous solution. The disadvantages of the latter are, its liability to decompose, and the chances of absorption by some running down the cheek into the mouth, which a child always has open when anything is being done to its eye.

When the patient returns, the pupils are widely dilated and accommodation is wholly suspended, so that the total hyperopia is unmasked. No one who is not in the habit of constantly using it can have any conception of the difference between given cases before and after its use. At the preliminary skiascopy, the shadows may reverse with, say, a + 2 D. sph., and after atropine we may find 6 or 7 D.

The Use of Atropine

The disadvantage of atropine is that it exposes to the light reflex the basilar portion of the cornea, the reflex of which often travels in a direction opposite to the central reflex. However, with practice, one soon becomes accustomed to neglect the former and concentrate the attention on the movements of the tiny central reflex. I invariably use the plane mirror at a distance of one meter, while the source of light is shielded and very small—only 5 to 7 mm. in diameter, *i. e.*, about the size of a dilated pupil. Thorington's chimney, with an iris diaphragm, is the ideal illuminant.

Having worked out the error with the greatest care, the glasses are ordered for constant wear, and until these have been obtained, the atropine is ordered to be continued twice daily. When the glasses are in situ, atropine is stopped. The reason is that the ciliary muscle has been accustomed to act excessively, and that powerful innervation has become a habit often quite difficult to break. The child puts its accommodation in force for distance, and so renders itself artificially myopic. With atropine this occurs to a far less degree. The ciliary muscle gradually recovers its tone after the long rest, and settles down when the foveal image is at its best.

I attach the greatest importance to the accurate fitting of the glasses. Whenever possible, I order periscopic ones, as they are optically better and less liable to get smeared by the lashes. The lenses are invariably circular, and should be as large as possible, so that the child cannot look past the edge. In astigmatism it is difficult to obtain the periscopic effect, although it is occasionally possible in cases of high astigmatism, by placing the concave cylinder next the eye. Opticians would confer a vast boon on the community by rendering it possible to obtain toric lenses at a reasonable price.

Children and Glasses

I never now order glasses under two years of age. Not because the child, in falling, is liable to injure his eyes with fragments, for the lenses simply crack across, but because they never remain clean for any time. I have often tried glasses on young children under two, but have never been able to obtain any benefit to counterbalance the drawbacks. After two, however, I do not hesitate to prescribe for them. As I have said, the lenses should be circular and the bridge a wide W.

The ear pieces should be short and looped, so that they can be tied in position—curl sides should not be used under four years of age. When the glasses have been obtained, if they have a cylindrical element, I always test them to see if they can be made to rotate in the frames, and if they do I send them back to be cemented in.

Now, what is the value of correction in treatment? Lang and Barrett, who investigated this point, found 10 per cent. permanently cured and 33 per cent. cured while wearing the glasses, or 43 per cent. I have not been able to go through all my results, but in 1896 I had records of 285 I had treated out of 322 cases of esotropia. Of these,

(Continued on page 807)

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The Optical Treatment of Concomitant Esotropia

(Continued from page 805)

38 permanently cured, or 13.3 per cent.; 114 cured while wearing glasses, or 39.9 per cent.; 18 improved, but still converging, or 6.3 per cent.; *i. e.*, 59.5 per cent., or, not counting improvements, equals 53.2 per cent.

Buffon's Dissertation

This is a higher figure than most investigators seem to arrive at. Thus Worth gives only one-third of all cases. Of course, various operators vary in technique; however, I worked out all my cases myself, and am therefore pretty confident of their accuracy, and have no hesitation in saying that over one-half can be cured by glasses. Of course, the patients cannot do without the glasses unless their hyperopia diminishes; if it proceeds to practical emmetropia, they can dispense with them, but if the refractive error remains it obviously needs glasses.

Continuous Occlusion.—The covering of the better eye was originally advocated by Beer, in 1800, although I was much struck with observation of Buffon, in his "Dissertation sur la Cause du Strabisme ou des Yeux Louches," presented to the French Academy in 1743, that the fixing eye should be covered to accustom the deviating eye to fix and project properly. The mistake made was that this covering was only carried out for a short time daily—only about two hours.

Now, Javal has shown that we cannot obtain any improvement if both eyes are allowed to act simultaneously. My method now is to cut the lashes close to the lid margin, and fix them together with a vertical band of adhesive plaster. Over this I fill up the orbital hollow flush with layers of gauze, and, finally, cement it down with collodion. This pad remains for ten days. When the patient comes again the vision is tested, the deviating eye covered, and the pad removed to permit of disinfection of the eyelids, and then it is re-applied.

The improvement of vision of the amblyopic eye is often startling. In two weeks it may run up from fingers at 6 feet to $\frac{6}{32}$ sn., or even $\frac{6}{18}$. I continue this treatment for a month, at the end of which time the retina has recovered as much acuity as it is likely to do.

Training Binocular Vision

My next step is to train binocular vision. In special cases, I order the lens for the better eye to be ground in smoked glass, to equalize the luminosity of the image. That, I am convinced is an important point in treatment.

Having obtained the lowest grade of binocular vision we have to raise it to the second grade by educating the fusion sense, and in this connection I would draw your attention to a method very little used, but which has, in my opinion, much to commend it—I allude to prism treatment. We place a candle at 4 meters and then find the weakest prism, base out, which fuses. This prism is divided between the eyes and the accommodation, with spheres ordered for constant wear for a month.

Next time we again measure the fusion and prescribe weaker prisms, and so we proceed until the fusion is perfect. I have not tried this fusion to any extent, because of the great expense involved; but if here again this could be reduced, I should be only too glad to use it more extensively, as I am sure it is a physiologically correct method.

The best stereoscope for enabling fusion exercises to be carried out is the so-called amblyoscope of Worth. The child is placed between the operator's knees, and incomplete pictures are placed in the tubes; he is shown how to fuse these, etc. As I have said, binocular fusion commences in infancy, about the sixth month, and it would appear to attain its full development about five years of age, so that the age of patients suitable for fusion training is from three to five years. After six the sense is permanently lost, and true binocular vision is lost with it. When fusion can be maintained, and the eyes are fairly equal in visual value, reading should be carried out by the "bar" which has been already described as a test for binocular vision.

In infants too young to wear glasses, the better eye must be kept continuously under atropine. You have seen that the whole train of symptoms commences in the ciliary muscle of the fixing eye. If we paralyze it, the pathological process comes to a standstill. One often sees an esotropia completely disappear so long as the eye is kept atropized. The infant soon learns to regard near objects with the unatropized eye, and distant ones with the atropized eye. In this way we set up an alternating instead of a fixed esotropia, and, as in alternating cases, we find that the retina has not suffered from disuse.

In cases where binocular vision has been lost by opacities in the media, or by congenital amblyopia, we cannot, of course, obtain any improvement other than by operation. As these cases, generally speaking, constitute one-third of the total number, we are entitled to conclude that two-thirds of all cases of esotropia are curable without operation, provided they are placed under treatment early enough. This is the greatest point of all; you can never send the case too soon, but you can easily defer doing so till too late.

[THE END]

What the Blind Can Do

It is fast becoming true that, to paraphrase an old saying, there is no such word as impossible in the language of the blind. There is in Philadelphia a blind newspaper dealer who without help conducts a successful business. The veteran blind newsdealer, Marcellus Betz, only recently died in New York from a fall while serving papers on his route. He lost his eyes in 1860. He was 71 years of age and had been selling papers since he was 8 years old.

In Berkeley, Cal., there is living a young woman of 19 who can do almost anything that others do—except to see. She graduated at the usual age from the high school. Besides all the usual accomplishments of the blind, she is a good musician, reading the raised notes for the blind; she is a good seamstress; she not only uses the typewriter for the blind, but the ordinary one, taking down rapidly from dictation; she plays whist with interest and skill, by means of pin pricks in the corners of the cards which she understands, touching each card as played by the others, and then promptly playing her own. She is an expert bicycle rider and has made her "century run." She rests her left hand in riding on the right hand of her companion and guides the machine with her right hand.

We have heard of a blind man, also deaf and dumb, who traveled alone all over the United States, lived a good and enjoyable life, sup-

ported himself and family—all by means of a most ingenious device, the letters of the alphabet tattooed plainly upon the palm and fingers of one hand. By pointing to these letters others soon learned to understand what he "said," and their answers were known to him by the spots or letters they touched upon his hand in reply.

An essay on "Optimism" by one so heavily handicapped for existence as to be deaf and blind may well seem impossible, yet such an essay was recently published. A cynic might declare that to be barred from all aspects of the world and dead to its every utterance were to enjoy it most—as a diminished evil! But he wouldn't mean it. A moment's reflection, however, suffices to show why Helen Keller, the author referred to, though apparently doomed to an endless night whose gloom no voice from her kind can ever pierce, may indeed exult in the goodness of things, since, thanks to her human brethren, she has won victory over these blighting deprivations. How she feels in this regard, she herself tells us:

"Most people measure their happiness in terms of physical pleasure and material possession. Lacking this gift or that circumstance, they would be miserable. If happiness is so to be measured, I, who cannot hear or see, have every reason to sit in a corner with folded hands and weep. If I am happy in spite of my deprivations, if my happiness is so deep that it is a faith, so thoughtful that it becomes a philosophy of life—if, in short, I am an optimist, my testimony to the creed of optimism is worthy of hearing. As sinners stand up in meeting and confess to the goodness of God, so one who is called afflicted may rise up in gladness of conviction and testify to the goodness of life."

Even were this essay, Miss Keller's first output in independent authorship, of no more literary value than the average "girl-graduate's commencement paper," still it would stand as an edifying volume well worth perusal. But Miss Keller, in addition, reveals familiarity with the great writers, knowledge of the world, and a considerable degree of information and culture.

The Newspaper Man's Surgical Wonder

The newspaper man's disregard for mere facts is proverbial, but he generally produces something worth reading, if not worth believing. A pretentious daily journal now before us has the following: "Charlie Bird was compelled to undergo a very painful surgical operation last Sunday. Some time ago he was struck in the eye by the horn of a cow, which he was leading from the pasture; this caused him considerable trouble, and the same eye was again injured by the kick from an overloaded gun which he was using. Inflammation set in, which made it necessary to remove the member, scrape it and put it back, which was a very painful operation. At last reports he was doing as well as could be expected, and it is hoped he will not lose his sight."

"Just Suits"

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Practical Photography

Flashlight Powder Explosions

Not many years ago it was discovered that when the metal magnesium could be drawn into wire or flattened into ribbon, the light it emitted when ignited in contact with the atmosphere was of such a high actinic character that it could be used for photography, particularly for enlarging purposes, as well as being used to illuminate dark interiors, mines and many other places which hitherto it had been impossible to illuminate sufficiently for photographic purposes.

Several kinds of apparatus had been invented in the form of a self-feeding lamp, which allowed the magnesium to pass by means of clockwork mechanism at a regular speed through the flame of an alcohol lamp, means being provided to convey the white smoke of magnesium oxide through an arrangement to the outside of the apartment. With such a piece of apparatus the employment of magnesium became perfect as an illuminating agent for many purposes in photography, but where a large group had to be photographed, including, perhaps, a well-defined interior, the magnesium lamp was useless.

Resort was sometimes made to the burning of the magnesium ribbon or wire without a lamp; this plan, although simple, was uncertain. Then it was found that powdered magnesium could be employed by blowing it through an alcohol flame, giving at the same time a greater volume of light than could be produced by the use of magnesium wire or ribbon. It was also discovered that, owing to the minute particles of magnesium presenting a considerable surface for the action of the flame and the oxygen of the air, that the light was almost instantaneous, and from this action came the idea of producing instantaneous flashlight pictures.

The combustion of the metal magnesium powder itself not being quick enough, efforts were made to increase the rate of combustion. This was soon attained by an admixture of some chemical containing oxygen which would give the latter off by simple ignition. Nitrate of potash has been used, but this was found to be unsuitable, because, when it became damp the magnesium was attacked and became in part nitrate of magnesium; the whole compound then became spoiled. The use of nitrate of sodium proved no

better. It was then discovered that chlorate of potash formed the most convenient and suitable substance to supply the extra oxygen for the rapid burning of the magnesium, and the so-called instantaneous flashlight powders, sometimes a mixture of potassium perchlorate and potassium chlorate is used, and to aid the rapid combustion of the powdered metal the use of guncotton was introduced.

Serious Flashlight Accidents

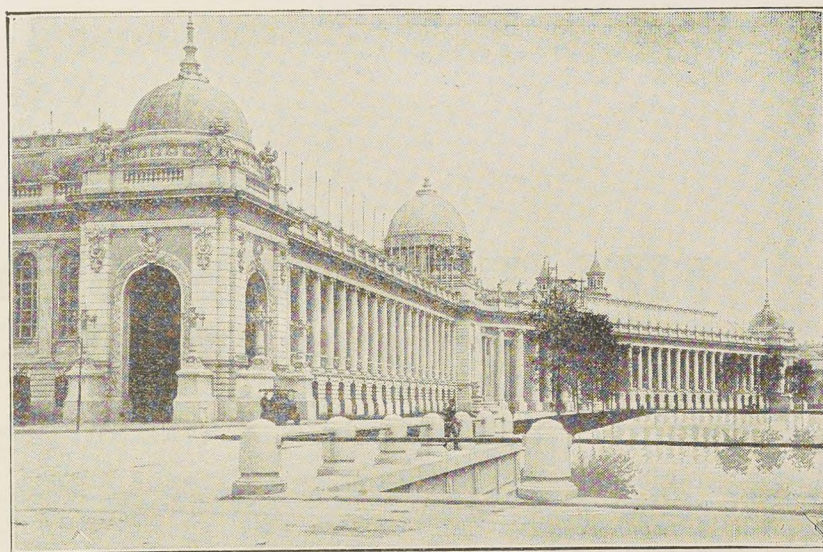
Many accidents have occurred, says the *Photo-Beacon*, by using some of these flashlight compounds, in some cases with loss of life. It does not appear to be generally understood that all compounds for flashlight purposes are explosives of a high order and should at all times be handled with great care. Recently some

of sulphur. If it is desired to see the action of a fine grain of sulphur in combination with chlorate of potash, simply take a few grains of each of the above in powder form, mix them with the tip of a knife, place only a small quantity upon the side of a square iron weight, then strike with a hammer or rub the mixture between two hard substances. A miniature explosion occurs. It will be readily seen from this that if these bodies are mixed with such a substance as magnesium (the latter being a very high electro-positive metal), with its enormous affinity for oxygen, that there is a hidden danger that may make itself manifest at any time. All such compounds as these should be kept in small quantities only. The metal magnesium itself is safe to handle, and with a suitable lamp, where it can be blown through a hollow flame, it can be depended upon for rapid combustion; this is the only safe way for employing magnesium by the amateur.

If potassium chlorate must be employed to aid in the production of an instantaneous light, a small quantity only should be mixed just previous to using, the mixing to be done with a bone knife, neither hard rubber nor celluloid should be used, because friction alone with these substances always brings about an electrical condition that may prove as effective as heat for ignition.

It will appear from the above that considerable care must be taken in using powders in order that explosions and possibly serious damage may be obviated. In this, as in all else wherein chemicals are used, the user should be well posted on the character of the substances which he is called upon to handle.

To make old photographic plates good as new a correspondent recommends that after exposure in the camera they should be immersed for from three to five minutes in one per cent. solution of potassium bichromate, well washed, and then placed in the developer. The only difference between fresh plates and plates old and so treated, he said, was that unless the bichromate was very thoroughly removed by washing, the action of the developer would be slow, and even then development would occupy a greater amount of time. It was evident that the success of the operation depended on the strength of the bichromate solution not exceeding the one per cent.



striking view of the Varied Industries Building, St. Louis Exposition, in which the jewelry exhibits are located.

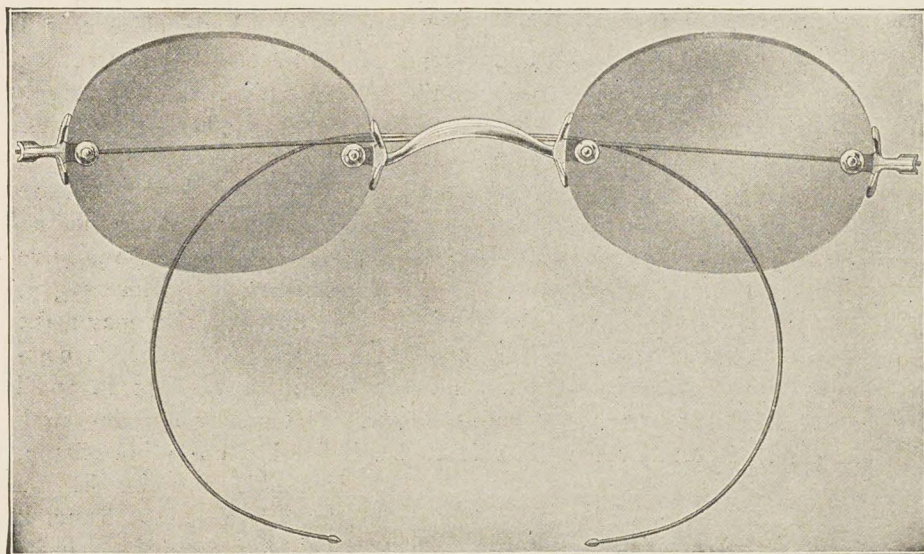
of the compounds of phosphorous have been used in combination with magnesium powders, to aid the brilliancy of the light. The employment of the phosphides with magnesium is as dangerous as the use of the sulphides; in fact many of these combinations are as explosive as gunpowder, and the line of safety is so small that even in the hands of experienced workers very serious accidents do occur.

The reason for this danger is not far to seek, from a chemical standpoint. The affinity between magnesium and oxygen being very great, only a slight rise in temperature is necessary to bring this affinity into action. The result of this rapid combustion is an explosion in just the same way as an explosion takes place when gunpowder is ignited.

Ignition of Flashlight Powders

Flash powders have been known to ignite through friction alone, especially if a chip of wood is in the mixture, or a small piece of charcoal or any carbonaceous matter, or even a minute trace

Be Like the Japs, Prepared

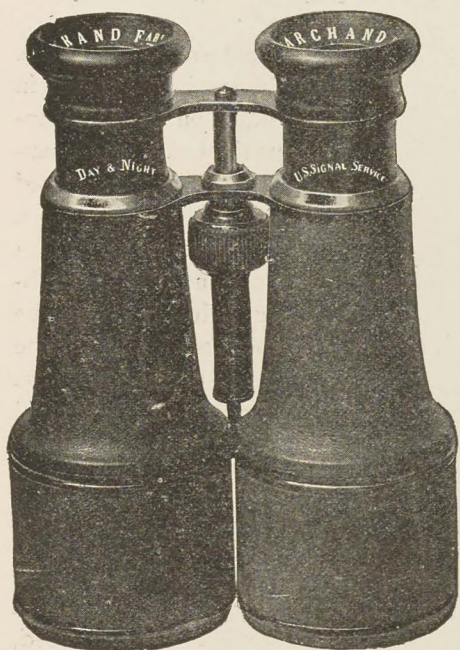


Summer will come with a rush!
Now is the time to get your
stock in shape.

SMOKE GOODS—

Spectacles and Eyeglasses, in
frameless and frame.

No. 5600. Nickeled Mountings, Mi-Coquille Smoke Lenses, OO Eye, \$2.25 per dozen.
No. 5700. Alloy Mountings, Mi-Coquille Smoke Lenses, OO Eye, 2.50 " "



FIELD, TOURISTS' AND BIRD GLASSES

for the St. Louis Exposition—all styles and prices.

No. 40218 Marchand.

Morocco-covered bodies, japan finish, black
oxidized tubes, nickel trimmings, achromatic, day
and night, United States Signal Service Glass.
Leather carrying case with shoulder strap.

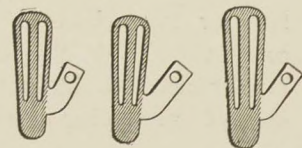
24 L., \$4.50.

Use the popular

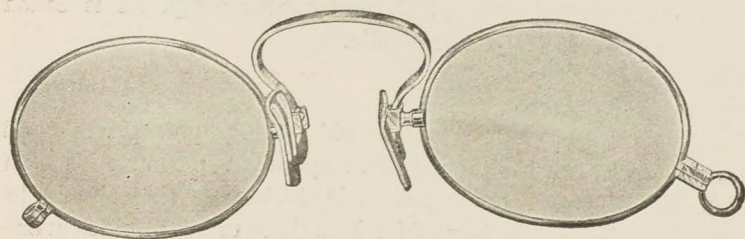
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on your eyeglass orders.

Sanitary, Easily Adjusted,
Comfortable.



Nickel, \$1.00. Gold Filled, \$2.00. Gold, \$6.50 per dozen.



PROMPTNESS.

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Our **Rx Work** is the BEST.

Send for complete catalogue, price-list, Rx pads,
addressed envelopes.

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WHOLESALE, MANUFACTURING AND JOBBING OPTICIANS,

723 Sansom Street,

Philadelphia.

Optical Organizations

NATIONAL

American Association of Opticians (1898)

JOHN C. EBERHARDT, President, Dayton, Ohio.
E. L. JONES, Secretary, Sandusky, Ohio.

Meets annually. Next meeting to be held at Milwaukee, August 1 to 4, 1904.

Worshipful Company of Spectacle Makers (England) (1629)

HON. ALBAN G. H. GIBBS, M. P., Master.
COL. T. DAVIES SEWELL, F. R. A. S., Clerk, Guildhall, London, E. C., England.

British Optical Association (1895)

M. W. DUNSCOMBE, F. B. O. A., President.
J. H. SUTCLIFFE, F. R. S. L., F. B. O. A., Secretary, 17 Shaftesbury Avenue, London, W., England.

Canadian Association of Opticians (1896)

SAMUEL S. GRANT, President, Montreal.
ALEX. MOFFAT, Secretary and Treasurer, Brantford.

Scottish Optical Association (1903)

JAMES CHALMERS, President, Springburn, Glasgow.
JOHN LAMONT, Secretary, 514 Victoria Road, Glasgow.

INTERSTATE

New England Association of Opticians (1894)

CLARENCE S. HART, President, Lynn, Mass.
G. A. BARRON, Secretary, 3 Winter St., Boston, Mass.

Meets third Tuesday of each month, except July and August.

Northwestern Optical Association (1901)

J. W. GRAINGER, President, Rochester, Minn.
E. C. ROBERTS, Secretary, Red Wing, Minn.
Next meeting, June 22 and 23, at St. Paul, Minn.

STATE

Pennsylvania Optical Society (1895)

A. MARTIN, President, Philadelphia, Pa.
C. A. LONGSTRETH, Secretary, 228 Market St., Phila., Pa.
Next meeting, May 10, 1904, at Philadelphia.

New York State Optical Society (1896)

B. B. CLARK, President, Rochester, N. Y.
P. A. DILWORTH, Secretary, 1032 Third Ave., New York City.

Indiana Optical Society (1896)

C. M. JENKINS, President, Richmond, Ind.
MISS MARGARET J. ERISMAN, Secretary, Lafayette, Ind.

Michigan Optical Society (1896)

E. W. E. PATERSON, President, Grand Rapids, Mich.
E. EIMER, Secretary and Treasurer, 105 Western Avenue, Muskegon, Mich.
Next meeting, August 18, 1904, at Battle Creek.

Iowa Optical Society (1897)

W. B. ANKENY, President, Corning, Iowa.
G. E. BOYCE, Secretary, 202 Syndicate Block, Waterloo, Iowa.

Illinois Optical Society (1898)

GEORGE A. ROGERS, President, Chicago, Ill.
O. J. HALBE, Secretary, 501 Trude Building, Chicago, Ill.

California State Association of Optometrists (1899)

CHAS. H. WOOD, President, Oakland, Cal.
W. HESS, Secretary, 505 Kearny Street, San Francisco, Cal.

Oregon Association of Opticians (1899)

J. O. WATTS, President, Eugene, Oregon.
C. L. HAYNES, Secretary, Portland, Oregon.

Washington Association of Opticians (1899)

H. CLAY EVERSOLE, President, Seattle, Wash.
LEANDER BUTT, Secretary, 715 First Ave., Seattle, Wash.

Granite State Optical Association (1900)

GEO. H. BROWN, President, Manchester, N. H.
W. E. BURPEE, Secretary, Manchester, N. H.
Meets third Wednesday of January, March, May, September and November.

Wisconsin State Optical Society (1900)

ALVA SNIDER, President, Beloit, Wis.
I. M. ADDLEMAN, Secretary, Tomah, Wis.

North Carolina Optical Society (1900)

F. W. MAHLER, President, Raleigh, N. C.
SAMUEL RAPPORT, Secretary, Durham, N. C.

Minnesota Optical Association (1900)

J. M. CHALMERS, President, Lake City, Minn.
C. A. SNELL, Sec'y, 608 Nicollet Ave., Minneapolis, Minn.

Maine Association of Opticians (1901)

H. E. MURDOCK, President, Portland, Maine.
ROBERT B. SWIFT, Secretary, Portland, Maine.

Tennessee Optical Society (1901)

A. H. WENNING, President, Nashville, Tenn.
GEO. R. CALHOUN, Secretary, Union and Summer Sts., Nashville, Tenn.

Colorado Optical Association (1901)

R. B. FINCH, President, Denver, Colo.
R. H. BIEGEL, Secretary, 636 Sixteenth St., Denver, Colo.
MISS E. H. CHAPMAN, Cor. Sec'y., 1655 Welton St., Denver, Colo.

Kansas Association of Opticians (1901)

THOMAS GOWENLOCK, President, Clay Center, Kans.
F. W. REED, Secretary and Treasurer, Wichita, Kans.
Annual meeting, May 18 and 19, 1904, at Wichita.

Missouri Association of Opticians (1901)

LEON BAER, President, Kansas City.
J. W. TALBOT, Secretary and Treasurer, Nevada, Mo.
Annual meeting, June 14 and 15, 1904, at St. Louis.

Virginia State Optical Association (1902)

A. F. JAHNKE, JR., President, Richmond, Va.
J. W. BUCHANAN, Secretary, Petersburg, Va.

Ohio Optical Society (1902)

F. W. WALLIS, President, Columbus, Ohio.
EDWIN L. JONES, Secretary, Sandusky, Ohio.

Kentucky Optical Society (1902)

O. R. KING, President, Lexington, Ky.
J. M. IRMEN, Secretary, 336 Fourth Ave., Louisville, Ky.

North Dakota Optical Association (1903)

E. P. SUNDBERG, President, Fargo, N. Dak.
W. R. BLAKELEY, Secretary, Grafton, N. Dak.

New Jersey Optical Society (1903)

F. C. LEAMING, President, Trenton, N. J.
J. J. HARTMAN, Secretary, 16 Howard St., Newark, N. J.
Annual meeting, May 2, 1904, at Newark.

South Dakota Optical Association (1903)

WILLIAM H. FRITZ, President, Sioux Falls, S. Dak.
D. G. GALLETT, Secretary, Aberdeen, S. Dak.

Texas Optical Association (1903)

W. W. CHAMBERLIN, President, Houston, Texas.
F. M. TAYLOR, Secretary, 328 Live Oak St., Dallas, Texas.

Rhode Island Society of Optometry (1903)

WALTER BLAKE, President, Providence, R. I.
FREDERICK LEWIS BLAIR, Secretary, 90 Broad Street, Providence, R. I.
Meets first Monday of each month.

South Carolina Optical Society (1903)

W. E. AVERY, President, Columbia, S. C.
M. R. ABBE, Secretary, Columbia, S. C.

LOCAL

Central New York Optical Society (1895)

WM. D. OERTEL, President, Syracuse, N. Y.
JAMES HOLDEN, Secretary, Syracuse, N. Y.
Meets second Wednesday of January, March, May, July, September and November.

New York City Optical Society (1897)

E. LEROY RYER, President.
R. M. LOCKWOOD, Rec. Sec., 119 W. Fifteenth St., New York.
Meets second Wednesday of each month, except July and August, at College of the City of New York, 17 Lexington Avenue.

Rochester Optical Society (1897)

W. W. BISSELL, President, Rochester, N. Y.
HARRY M. BESTOR, Secretary, Rochester, N. Y.

Utica Optical Club (1901)

RICHARD PERLEN, President.
C. T. EVANS, Secretary, Utica, N. Y.

Chicago Optical Society (1902)

W. F. NEWCOMB, President, State and Adams Sts., Chicago, Ill.
O. J. HALBE, Secretary, 501 Trude Building, Chicago, Ill.

Niagara District Optical Society (1902)

JONAS HOUSE, President, Welland, Ont.
F. G. DUNLOP, Secretary and Treasurer, St. Catharines, Ont.

Buffalo Optical Society (1903)

ERNEST V. SYRCHER, President.
ROGER F. WILLIAMS, Secretary, 455 Main Street, Buffalo, N. Y.

Seattle Optical Society (1903)

CHARLES G. HOLCOMB, President.
LEANDER BUTT, Secretary and Treasurer, 715 First Ave., Seattle, Wash.

Los Angeles Association of Opticians (1903)

FRED. DETMERS, President.
F. LEE FULLER, Secretary, Los Angeles, Cal.

The Pueblo Optical Association (1903)

OREN H. HENRY, President, Pueblo, Colo.
JAMES A. HOWARD, Secretary, Pueblo, Colo.

The Victory in Illinois

THE announcement in our last issue that the Supreme Court of Illinois had finally decided in favor of the optician who had been prosecuted by the State Board of Health for violation of the medical laws of the State, created widespread interest among the trade, and we received many requests for a copy of the decision. In order that we might be able to furnish this information to our readers we communicated with the attorney representing the Illinois Optical Society, and received the following very courteous reply:

I herewith enclose copy of "Finding of Facts," made by the State Appellate Court, in the case of the State Board of Health vs. Chas. Lincoln Smith. In order that you may more fully understand, the Appellate Court, when the case was before it on appeal by Smith, from the judgment of the Circuit Court, of Peoria County, reversed the judgment of the Circuit Court and found in favor of Smith. The State Board of Health prosecuted its appeal from this judgment of the Appellate Court to the Supreme Court. The Supreme Court reversed the judgment of the Appellate Court on the technical ground that its finding of facts was insufficient to enable the Supreme Court to determine whether or not the Appellate Court had properly applied the law to the facts as found. The case went back to the Appellate Court, and they made the finding of facts, a copy of which is herewith enclosed.

From this decision the State Board of Health then, by writ of error, took the case again to the Supreme Court, which last court, at its December term, affirmed the judgment of the Appellate Court, thereby putting an end to the case.

Inasmuch as the decision of the Supreme Court was our way, I did not deem it necessary to incur the expense of procuring a copy of its opinion, and the case has not as yet been published in the regular Supreme Court Reports, consequently I am unable to furnish you with a copy of such opinion. It is sufficient for the present, however, for us to know that fitting eyeglasses does not come within the act of the General Assembly, enforced July 1, 1899, entitled "An act to regulate the practice of medicine in the State of Illinois."

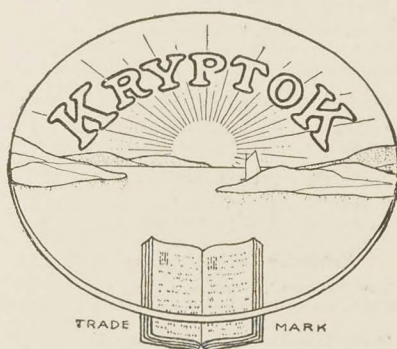
The result of the case is a most creditable triumph for the Illinois Optical Society, and furnishes further proof of the need for such a society in every State. The "Finding of Facts" embodying the decision of the court is as follows:

We find that appellant was engaged in the business of traveling optician; that he went from place to place in this State, including Peoria, where the acts in question were performed; that he fitted spectacles to persons of defective sight, first ascertaining, by test, the kind of lens required by his customers, then procuring glasses to be ground accordingly, and placed in a frame and delivered to his customers, and receiving payment therefor; that he advertised himself in the public press as "the famous Chicago eye expert;" and in such advertisements he invited persons afflicted with blurring, dizziness, neuralgia, headaches, spots before the eyes, inflammation, granulation, winking, trembling spells, cataracts, burning and smarting of the eyes and various nervous brain affections, to call upon him; that these advertisements stated he did not give medical or surgical treatment; that in these advertisements he stated that his glasses, fitted and ground by his method, benefited his patrons, and had cured headaches, blurring, itching and burning of the eyes, etc. We find that appellant's glasses relieved much trouble while they were used, but did not cure them. We find that appellant had no license from the State Board of Health. We find that appellant did not practice medicine or surgery. We further find that appellant did not treat or profess to treat, operate on or

(Continued on page 813)

THE KRYPTOK LENS.

Pat. May 23 and Nov. 21, 1899.



THE ONLY "INVISIBLE" BIFOCAL.

It is not merely that Kryptok glasses sell better than other bifocals. They sell to the "best people" in every community, and they are important and valuable enough for such people to enthuse over and recommend to others. This will be verified by every optician handling them.

Please write for prices and information to the manufacturers controlling your territory; or to any one of them if your State is not designated below.

A. S. ALOE CO., 513 Olive St., St. Louis. STATE OF MISSOURI.

JOHN L. BORSCH & CO., 1324 Walnut Street, Philadelphia. PENNSYLVANIA, DELAWARE, NEW JERSEY.

ALMER COE, OPTICIAN, INC., 74 State St., Chicago. ILLINOIS, WISCONSIN, IOWA, MICHIGAN.

COLUMBIAN OPTICAL CO., Denver, Colo. TEXAS, MONTANA, NEBRASKA, KANSAS, COLORADO, UTAH, OKLAHOMA, CALIFORNIA, WASHINGTON and OREGON.

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E. KLEIN & BRO., 435 Race Street, Cincinnati, OHIO.

ANDREW J. LLOYD & CO., 323 Washington Street, Boston. MAINE, NEW HAMPSHIRE, VERMONT, MASSACHUSETTS, RHODE ISLAND, CONNECTICUT.

E. B. MEYROWITZ, 104 East 23d St., New York; 604 Nicollet Ave., Minneapolis; 360 St. Peter St., St. Paul. NEW YORK, MINNESOTA, NORTH AND SOUTH DAKOTA.

WEDEKIND OPTICAL CO., Louisville, Ky. KENTUCKY.

JOHN WIMMER, 16 N. Pennsylvania Street, Indianapolis. INDIANA.

The Victory in Illinois

(Continued from page 811)

prescribe for any physical ailment or any physical injury to, or deformity of another, except in the manner and to the extent above stated. We find that the foregoing were the acts for which appellee sought to recover and recovered from appellant in this cause, the penalty prescribed by the act entitled "An act to regulate the practice of medicine in the State of Illinois, and to repeal an act therein named," in force July 1, 1899. We hold that these facts did not give appellee a cause of action against appellant.

A similar case, as told elsewhere in this issue, comes before the Iowa Supreme Court this month. The State society is also making the fight in this latter case, and we trust that the efforts of the energetic secretary of the organization will be crowned with victory.

Ohio Optical Association

The second annual meeting of the Ohio Optical Association was held at the Southern Hotel, Columbus, Ohio, on April 11th. President John C. Eberhardt occupied the chair and called the meeting to order at 2 P. M. The usual routine business was transacted and twelve applicants were admitted to membership. Then followed the annual address by President Eberhardt, in which he touched upon many matters of importance to opticians. Papers were read as follows: "The Object of Organization," F. W. Wallis; "The Value of Thorough Education," Prof. F. P. Barr; "The Practical Side of Optics," J. B. White.

Secretary Jones brought up the subject of forming a nucleus for an optical library for the use of the members of the Ohio society. The same was adopted. A motion was made and carried, that the following resolution be adopted and embodied in the constitution:

That a branch of this association be created, to be known as the optometrical section of the Ohio Optical Society.

Object—The encouragement of systematic study in analytical and technical optometry.

Requisites for Membership—Good standing in the Ohio Optical Association and evidence of qualification to be determined by the board of examiners.

Certificates—A certificate, signed by the examining board, president and secretary, will be issued to those qualifying.

Examining Board—A board of examiners, consisting of three, shall be elected at the annual election of officers, to serve for one year, whose duty it will be to pass upon applicants for membership, direct the course of study and establish a standard of capacity.

The following officers were elected for the ensuing year: President, F. W. Wallis, Columbus; vice-president, F. P. Barr, Lancaster; secretary, Ed. L. Jones, Sandusky; treasurer, J. B. White, Columbus; executive committee: Geo. F. Merry, Dayton; Ed. Klein, Cincinnati; C. B. Garrettson, Kenton; membership committee: A. Zollner, Portsmouth; F. A. Stengel, Marion; A. L. Thoma, Dayton; examining board: J. C. Eberhardt, F. W. Wallis and J. B. White.

President F. W. Wallis and Vice-President F. P. Barr were elected delegates to the approaching convention of the American Association in Milwaukee. A. G. Larsen, of Chicago, who is chairman of the committee of arrangements and transportation, told of what is being done at Milwaukee to entertain those attending the

national reunion. Opticians desiring to attend the convention are requested to correspond with the secretary, who will furnish information regarding hotels, railroad rates, etc.

The afternoon session was brought to a close and the members adjourned to the dining room of the hotel, where a banquet was given. Ex-President Eberhardt acted as toastmaster, and responses were made by F. W. Wallis, F. P. Barr and others.

New England Association of Opticians

The regular monthly meeting of the New England Association of Opticians was held on Tuesday evening, April 26th, and was followed by the annual banquet and ladies' night. At the meeting ballots were taken on the membership applications of Walter L. Pierce, Stoughton, Mass.; E. S. Parker, Woburn, Mass., and Charles F. Pettingill, Quincy, Mass.

A formal reception was held at 5.30 and dinner was served about half an hour later. The last-named function was a most enjoyable one, and formed an admirable prelude to pleasant time spent at Keith's Theater, whither the banqueters adjourned when the gastronomical part of the programme had been gone through. The reunion in all its features was marked by a success that compensated the executive for its indefatigable exertions to bring the functions to a noteworthy climax. President Hart and Secretary Barron worked with energy for the success of the reunion, as also did the following banquet committee, to whom much praise is due, Briggs S. Palmer, Frederick P. Simmons and F. M. Drisko.

Illinois Optical Society

A meeting of the Illinois Optical Society was held at the office of the secretary on April 14th. The president called the meeting to order, and it was moved, seconded and carried that the reading of the minutes of the previous meeting be postponed until the next meeting. F. J. Meyer, Jr., E. Strausburgh, Dr. J. W. Dunlap and F. Purdy were admitted as members. It was moved and carried that an official letter signed by the president and secretary, be sent to the publishers who contributed books to the society's optical library.

S. Fowler and O. J. Halbe were appointed a committee to revise the constitution and by-laws. The president and Messrs. Walter Wyatt, Peoria; O. C. Lamphear, Galesburg; H. Borsch and L. L. Boyle, Chicago, were appointed a committee to prepare a report on the subjects for the next meeting.

Kansas Association of Opticians

The annual meeting of the Kansas Association of Opticians will be held at Wichita, Kans., on May 18th and 19th. It had been originally contemplated to hold this meeting on April 27th and 28th, but a change was deemed advisable in order there might be an extension of time for perfecting arrangements and elaborating the programme. Apart from these advantages, however, the executive showed a wise forethought in making the alteration, for the dates now fixed upon occur during the holding of the Street Fair. For the last-named event a one and one-fifth rate has been allowed by the railroads. For the best paper read at the meeting a De Zeng retinoscope will be given as a prize, and for the second best a five-dollar

gold piece. With so many powerful attractions there is an excellent outlook for a bumper attendance at the meeting, and this, together with the instructive programme that has been arranged, should go far to make the 1904 reunion the most significant that the Kansas Association has yet held.

W. J. Lewis, former president of the association, will lecture on "Retinoscopy," giving practical demonstrations. Prof. Lane, of the Southwestern Optical College, of Kansas City, will lecture on "Practical Optics," and a feature that promises to prove of considerable interest will be a quiz class and a question box. In addition, a number of other papers will be read and discussions will take place on ripe and pertinent optical questions.

Pennsylvania Optical Society

A special meeting and smoker of the Pennsylvania Optical Society will be held in Parlor 4, Continental Hotel, Philadelphia, on Tuesday, May 10th, at eight P. M. The subject for the evening will be "Diseased Eyes; How to Recognize Them and When to Send Them to the Oculist." Plates of the various diseases will be thrown on the screen and the subject discussed by various members.

Anti-Optician Suit in Iowa

In our last issue we announced a victory for an Iowa optician in a suit instituted by the State Board of Health. The latest development in the case is explained in the following circular addressed to "The Members of the Iowa State Association of Opticians and all Opticians of the State:"

I wish to inform you that the Edmunds case has been appealed to the Supreme Court and will come up in the May term.

I have made a special trip to Hampton at my own expense to look into this case and to consult Dr. Edmunds and our attorney and get the facts of the case to be able to lay it before you in the proper light, and I find that it is of the utmost importance to all that we win this case.

Of course, Dr. Edmunds is discharged and cannot be prosecuted upon this case any further, no matter what the decision of the Supreme Court may be, but this is a test case taken up by the State Board of Health to determine fully whether or not the fitting of glasses for any defect, ailment or trouble shall be considered as practicing medicine in the meaning of the law. The fact that Dr. Edmunds was an itinerant has no bearing or value in this case or in the judge's decision. If we stand back and lose this case the State Board can stop all of us from doing any refractive work whatever unless we are M. D.'s; but if we win, it will settle this business for all time to come, and give us the decision we have long been wishing for and we cannot be molested again. I have consulted some very able legal talent in this matter, and am not talking without fully understanding what I am saying. Our victory would also help other State societies to establish their rights. This case can only come up once, so you can see that it is really the fight of our optical lives. We have one of the best attorneys in the State, who has been working on this case for Dr. Edmunds for the past eight months, and knows every crook and turn in it, and is well prepared to win it but it will be a hard fight. It will cost us between \$300 and \$400 to carry this through, and the price is very nominal for a case like this. It is very essential that every optician in the State contribute liberally. I will receive all contributions and send receipts for same, and will read a list of the contributors at our annual meeting in June. If more money is sent than is needed in the end, it will be returned *pro rata*. In a few letters already received I have pledges of about \$100. Make your remittance to me at once as we have no time to lose.

Fraternally yours,

G. E. BOYCE, Sec'y.



"UP AGAINST IT."

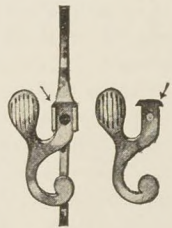
The Bonschur Post Lock

The Draw-Lock Shoulders are always "Up against it," viz: The Post flanges and remain there. A LOOSE GUARD with this device is IMPOSSIBLE. It is

a never-failing money-maker and saver.

Those employing guards of this construction enjoy the unique experience of sharing in a perpetual "BULL MARKET."

YOUR JOBBER will so supply your favorite guards in all metals Write distinctly—with BONSCHUR DRAW-LOCK SHOULDERS.



BEWARE OF IMITATION BIFOCALS.

The following correspondence explains itself:

February 24, 1904.

Johnston Optical Co., Detroit, Mich.

Gentlemen:—I am writing you for information. Some time ago I bought a line, represented as your Grooved Bifocal Lenses, from the agent of — after he had explained to me that the lower glass was the same for all sizes of lenses, perfectly interchangeable for all lenses. Well, I bought only No. 1 eye lenses, but was much surprised to find that there was scarcely a fit in the lot. Of course I returned them. I was greatly disappointed, because I had hoped that it would save much trouble and require less stock if the lower glass was interchangeable. I thought it possible that improved machinery and attention might have remedied the fault, and I am writing you for information on that point, as I would gladly use the lenses if they were as represented.

Yours truly,

OUR REPLY TO MR. —'S LETTER.

Detroit, Mich., Feb. 27, 1904.

Mr. —:—We have your communication of the 24th inst., and believe you must be mistaken in supposing that you received some of our Automatic Grooved Perfection Bifocal lenses which do not interchange, as they are made with automatic machinery so it is impossible for them to be otherwise than strictly interchangeable where you have a stock of both uppers and lowers of our make. We would be very glad if you would send us a sample of the lenses you have, that we may determine as to their being our goods. We would be very glad to receive your orders for same and will guarantee them perfectly satisfactory.

Yours truly,

JOHNSTON OPTICAL CO.

Johnston Optical Co., Detroit, Mich.

March 11, 1904.

Gentlemen:—Your favor of Feb. 27th duly received. In the meantime I wrote the —, asking them if the Grooved Bifocals sent me were your make, and received an answer saying they were not, but were made by —. Nevertheless, when I bought the goods of Mr. — he told me they were your make. But, as I said in my previous letter, they were failures and I returned every one of them. I will soon make an order and send you.

Yours truly,

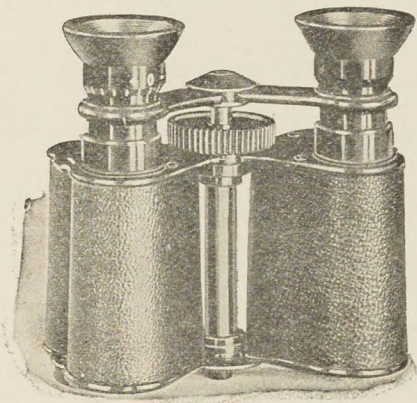
For the sake of courtesy we thought best to omit the names of the manufacturer, jobber and customer in the above letters.

The **Johnston Automatic Grooved Bifocal** Lenses are ground automatically with grinders we invented, and the reading lenses are guaranteed to fit all sizes of distance lenses.

Johnston Optical Co.

Leading Prescription House of America.

DETROIT, MICH.



WARNER & SWASEY PRISM BINOCULAR.

Officially adopted by the NAVY DEPARTMENT as the "Standard" and now used on every U. S. battleship and cruiser —also used in the Army, Lighthouse Service and other Departments of the Government.

UNEQUALED for the tourist, yachtsman, sportsman, etc. Ask your Jobber for them.

Write for the booklet.

The Warner & Swasey Company, Cleveland, Ohio.

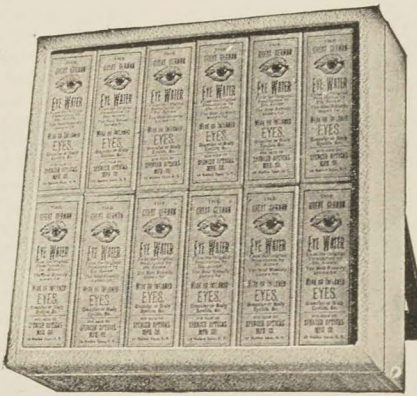
AN ACTUAL FACT

The Great German Eye Water

(From the formula of Dr. Agnew) is the best, simplest and most effective preparation ever compounded, for inflammation of the eyes or eyelids, Conjunctivitis, Blepharitis or scaly eyelids, burning, smarting or itching of eyes. Its antiseptic properties destroy the germs and prevent acute inflammation. The phenomenal success of this Eye Remedy, has encouraged several opticians, (would-be) eye specialists and "home-made" Doctors to put upon the market Eye Remedies of divers kinds, and by extensive advertising attempt to divert the attention of the trade from a valuable Collyrium that has been used for years in nearly every hospital in the world, to remedies of which little is known, except by the advertisers, but the many opticians who have sold the German Eye Water for 20 to 25 years will attest to its value and recommend no other. Dr. Agnew's portrait is on every box. Get the original. Sold on its merits.

A handsome Show Case with your order for three dozen bottles. Also your special label on bottles if six dozen are ordered, and express paid to all parts of the United States. Price, \$1.63 per dozen, \$19.50 per gross. Order from your jobber or direct from the proprietor.

W. F. CUSHMAN, 711 Boylston St., Boston, Mass.



THIS IS AN EYE WATER.

ALL EYE WATERS OF ANY VALUE ARE EYE REMEDIES.

WHAT IS A REMEDY? Any substance or preparation used with the view of curing or allaying morbid action. As it would require many of the valuable pages of THE KEYSTONE to publish the testimonials received from dealers and users of The Great German Eye Water, I refer dealers in optical goods to a few of the leading opticians in different parts of the country, selling this remedy, some of them for more than 20 years. This remedy is NOT for sale in drug stores, but by the optical trade EXCLUSIVELY. NO COCAINE in this formula.

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Clinics in Optometry

[All rights reserved.]

[We present herewith the first of a series of clinics, which will be published monthly in this department. They will cover all manner of eye defects, from the simplest to the most complicated, and each clinic will be complete in itself. In order to make these clinics of maximum benefit, we invite our readers to join in them by sending us any criticisms or suggestions they may have to make in regard to the treatment here given.—Ed.]

A Case of Simple Hypermetropic Astigmatism

J. S. E., a young man, twenty-five years of age, was sent by his family physician. The symptoms of which he complains are as follows: Trouble in reading, especially at night, words run together, pains in head and drowsiness.

The question was asked him, as should be done in every case that applies for relief, whether or not glasses had previously been worn. He replied that he was given glasses some four years ago by an optician, but they were not comfortable, and he never could wear them. On examination by the lens measure they proved to be O. D. —.25 D. S. —.25 D. cyl. and O. S. —.25 S.

We ask the patient to be seated and direct his attention to the test card hanging on the wall directly facing him, and at a distance of twenty feet. "How far down the card can you read?" is the first question, and in reply he names every letter on the No. 20 line. We make the proper note in our record book that vision = $\frac{20}{20}$, which means that with both eyes open while seated at a distance of twenty feet, he is able to read the line that is marked 20, which indicates that the acuteness of vision is up to the normal standard.

Such being the case we involuntarily make a mental criticism of the concave glasses which had been prescribed by the former optician, and we can readily understand why they never were comfortable. We want to treat everyone fairly and we want to be treated fairly ourselves, and therefore we do not think it wise to condemn our competitors. One can scarcely improve his own reputation by making damaging statements about the work of others engaged in the same line of business as ourselves, even though such statements are entirely truthful. It is far better to make no comment, to say nothing.

But we will leave our patient for a moment, just long enough to preach a little sermon, using this optician's error as our text. We do not know who he is, but we hope he is not a reader of THE KEYSTONE, because we rather pride ourselves that no careless student of this journal could fall into such an error. Let us take a few moments to consider this matter.

When we find the visual acuteness to be $\frac{20}{20}$, what information is to be gained from this fact? Presumably, the refraction is emmetropic, but it may be hypemetropic, or slightly astigmatic, that is hypermetropic astigmatism. *It cannot be myopic.* Normal vision positively precludes myopia or myopic astigmatism. Therefore, in a case like this, concave lenses must not be tried; they must not even be thought of.

How did the other optician commit such a grievous error, for the prescribing of concave lenses in the presence of emmetropia or hypermetropia cannot be designated in any other

way? Perhaps he took the weak concave lenses from his trial case and held them before his patient's eyes, and of course they were accepted. Almost any pair of eyes can see through weak concave lenses at a distance. But the point we want to impress is that concave lenses must not be tried when the vision is normal, and if every optometrist will burn this rule into his brain, it will act as a danger signal to prevent him from straying into paths of error, and also as a guide post to keep him in the straight and narrow path of optometric rectitude.

We return now to our patient and commence the test with trial lenses. We place the opaque disk over the left eye, the right eye being uncovered and ready for the examination. We have made the statement above that concave lenses should not be tried when the visual acuteness is normal. Perhaps we had better make a broader rule as a guide, and that is in every case always to try convex lenses first. In accordance therewith we place a +.50 D. sphere in front of the right eye. The patient does not reject it absolutely, neither does he seem inclined to accept it; he is in doubt whether there is an improvement or not. Then we take this sphere out and quickly replace it with a +.50 D. cylinder, with its axis at 90°, so that the patient can mentally contrast the effect of the two lenses, and he at once indicates his preference for the latter as being the best. We repeat the trial of these two lenses, placing first one and then the other before the eye, and the patient unhesitatingly prefers the cylinder, which we then slowly rotate from the vertical meridian first to the right and then to the left. The patient is all the time looking at the No. 20 line of letters on the test card, and he says, as the axis is rotated from the 90th meridian, that the letters become less distinct, and after several trials we conclude that the proper place for the axis of the cylinder is at 50°. We then place alternately in front of this lens a +.25 cyl. axis 90°, and a +.25 S., both of which are rejected. In order to verify the rejection of the cylinder, we remove the +.50 cyl. and place in its stead a +.75 cyl., with its axis in the same position, when the patient says the former is the better. We now feel pretty sure that the +.50 D. cyl. axis 90° is the proper correcting lens. This represents a case of simple hypermetropic astigmatism with the rule.

Perhaps some one may ask why we did not try the card of radiating lines in order to detect the presence of astigmatism in this case. We reply that we do not consider this a reliable test in a case of slight hypermetropic astigmatism, because the ciliary muscle is so quickly brought into action, and by the irregular contraction of which it is said to be capable the defective meridian is neutralized. Theoretically, when astigmatism is present, on account of the difference in refraction of the two chief meridians, the lines running in one direction seem blacker and more distinct than those in the direction at right angles, and therefore when a variation is noticed in the distinctness of the radiating lines, we say astigmatism is present. This difference depends upon the fact that the light entering the emmetropic meridian is focused upon the retina and is distinct, while the rays

entering the ametropic meridian are focused in front of or back of the retina, and hence are indistinct. But if the accommodation is brought into action and the hypermetropic meridian thus made emmetropic, both meridians will focus upon the retina, and consequently no difference will then be discernible between the radiating lines.

Another reason why we place but little dependence upon this test for astigmatism, is that in the lower degrees of the defect, where the differences between the lines can be but slight, the patient may be unable to detect them. So much depends upon the intelligence of the patient, and there are so many patients whose powers of observation are but little developed, that the value of this test in the majority of cases is doubtful.

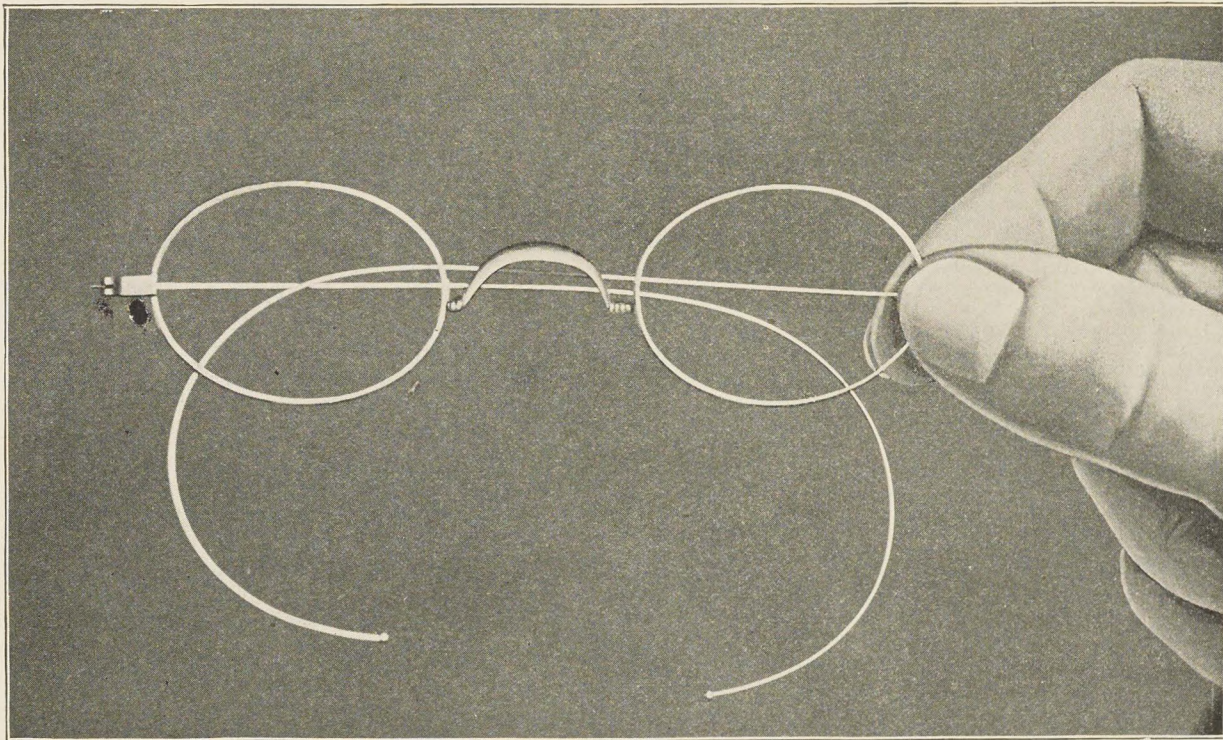
Instead of the card of radiating lines we use the card of test letters, and practically determine the existence of astigmatism by the acceptance of cylindrical lenses. If the patient is in doubt whether cylinders are better than spheres, and if the rotation of the cylinder makes vision neither better or worse, astigmatism is probably absent. But if the cylinder is quickly accepted, and if its rotation produces a decided impairment of vision, we may safely conclude that the case is one of astigmatism.

We now try the left eye. The +.50 sphere is promptly rejected, as is also the +.50 cylinder, with its axis placed at 90°. Before removing the latter, however, we try the effect of rotation. As the axis is turned to the right vision is made noticeably worse, but as it is turned to the left an improvement is perceptible, although patient says that vision is clearer without either of these lenses. We now have a clue, however; the fact that vision is improved by rotation of the cylinder in one direction, and impaired by turning the other way, indicates astigmatism. We now try a +.25 cylinder, and as we expected it is at once accepted, and after a few trials we find that the proper position for the axis is at 70°.

We then try the range of accommodation and find the patient can read the smallest print from $4\frac{1}{2}$ to 30 inches. By calling to mind what the normal near point should be at this age, we know that $4\frac{1}{2}$ inches is about right for this age, and that therefore the amplitude of accommodation is not impaired.

We pass on then to an examination of the muscular equilibrium, and for this purpose we prefer the Maddox rod, which is placed over the left eye in a horizontal position. We say to the patient that he will see a reddish vertical streak as he looks at the light across the room, and we ask him on which side of the light the streak appears to be. He replies that it is on the left side and about two inches away from it. We mentally analyze this condition: the streak on the same side as the eye, over which the rod is placed, means a homonymous diplopia, is due to esophoria, and is correctible by a prism base out. We therefore place a prism of 1°, with base out, over the right eye, and now the patient says that the streak runs up and down through the light, and we make a note in our record book that there is an esophoria of 1°. This is a not uncommon condition to find, and it is too slight to call for correction.



(Continued on page 819)



Geneva Special, No. 1136.

THE above illustration represents a new ten-karat solid gold riding frame placed on the market May 1st. This frame is the best value for the money that we have ever offered, and that is a large statement, as we have given the trade many good things in the past 30 years. It carries the Geneva Guarantee of being full 10 karat fine and bears the Geneva stamp of superior quality in finish and workmanship. Is made in 1, 0 and 00 eye sizes, and assortment of SS bridges in each dozen, as follows:

| | | | | | |
|----------------------------------|--|---------------------------|-------------------------------|--|---------------------------|
| 1 Pair M1, | $2\frac{1}{4}$ x $\frac{1}{8}$ plus $\frac{1}{16}$. | ($\frac{1}{16}$ outset.) | 2 Pair N1, | $2\frac{3}{8}$ x $\frac{1}{8}$ plus $\frac{1}{16}$. | ($\frac{1}{16}$ outset.) |
| 1 " M1, L. S., | $2\frac{1}{4}$ x $\frac{1}{8}$ | 0. (On plane.) | 1 " N1 $\frac{1}{2}$, L. S., | $2\frac{3}{8}$ x $\frac{3}{16}$ | 0. (On plane.) |
| 1 " M1 $\frac{1}{2}$, E. L. S., | $2\frac{1}{4}$ x $\frac{3}{16}$ | $\frac{1}{16}$. (Inset.) | 1 " N1 $\frac{1}{2}$, | $2\frac{3}{8}$ x $\frac{3}{16}$ plus $\frac{1}{16}$. | ($\frac{1}{16}$ outset.) |
| 1 " M2, L. S., | $2\frac{1}{16}$ x $\frac{1}{4}$ | 0. (On plane.) | 1 " N2, | $2\frac{3}{8}$ x $\frac{1}{4}$ plus $\frac{1}{16}$. | ($\frac{1}{16}$ outset.) |
| 1 " N1, E. L. S., | $2\frac{3}{8}$ x $\frac{1}{8}$ | $\frac{1}{16}$. (Inset.) | 1 " N2 $\frac{1}{2}$, | $2\frac{7}{16}$ x $\frac{5}{16}$ plus $\frac{1}{16}$. | ($\frac{1}{16}$ outset.) |
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Price is only \$21.60 per dozen net cash. Sample pairs, postage paid, \$1.95. Orders for less than one dozen, or for different assortment of bridges than above, will be charged 10% additional. Note the construction and finish of end piece. Temples always close flat. You can get this end piece on no other frame. Note weight and stiffness of bridge. Order one dozen or one pair, weigh them, assay them, and compare them in price with any solid gold 10 K. frames  you may have in stock, and you will use them permanently for your fine trade. Note trade-mark  in bridge.

This frame is not in the hands of Jobbers or Wholesale Opticians, and can only be procured direct from our Geneva Office, or through our travelers, and as it is impossible for our representatives to call on every Optician, we make THE KEYSTONE carry the message to all the Optical trade, giving dealers in every part of the world the advantages possessed by those who are able to call in person at our office.

Geneva Optical Co.,

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N. B.—“Geneva R₂ Work is accurate.”

Geneva Superior Binoculars are used by the U. S. War Dept.

General Catalogue sent on request.

OPHTHALMOSCOPY

This serial is the well-known exposition of the principles of ophthalmoscopy and the practical use of the ophthalmoscope, which forms one of the chapters in Dr. Tscherning's celebrated treatise, "Physiologie Optics," which can be had from this office on receipt of the price, \$3.50 (14s. 7d.)

Methods of Illuminating the Fundus of the Eye.—It has been known from the remotest times that the pupil of certain animals (dog, cat, etc.) can appear luminous. The phenomenon was thought to be analogous to the production of light by the glow-worm (phosphorescence); in reality it is due to the existence of the tapetum, a part of the chorioid, the retinal surface of which is strongly reflecting and has a metallic reflex: its purpose is not very well elucidated. As to the human pupil, it has been known for a long time that it may, in very rare cases, appear luminous after the development of an interior tumor of the eye (amaurotic cat's-eye). Beer also remarked the ocular glow in certain cases of aniridia.

Towards 1850 Cumming and Bruecke discovered the method of making the pupil of the normal eye appear luminous, and Helmholtz, in 1851, achieved the great invention of the ophthalmoscope, which was destined to revolutionize ophthalmology.

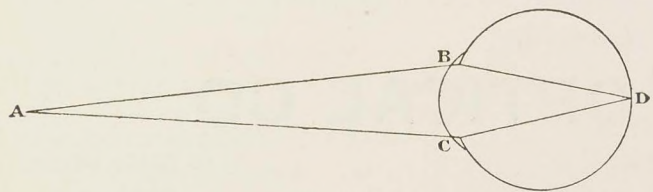


Fig. 125

Like every other object the fundus of the eye sends back light when it is illuminated. Let *A* (Fig. 125) be a luminous point for which the eye is accommodated. This point sends into the eye the cone *ABC*, the rays of which reunite at *D*. This point, being illuminated, sends the rays in all directions; those contained in the cone *ABC* emerge from the eye to meet at a point *A*. Generally, therefore, the eye can send back light to a point which has first sent the light to it, and if in ordinary circumstances the pupil of the eye appears black, it is because the pupil of the observing eye, being black, cannot send light back into the observed eye. In order that it may appear luminous, a luminous source must be placed in front of the observing eye; this is what we do by means of the ophthalmoscope.

Following are the different circumstances in which we can see the pupil luminous:

a. The pupil of albinos is seen red because the fundus of the eye is illuminated by the light which has passed through the sclera. If we cover the eye with a screen pierced by an aperture corresponding to the pupil, the latter appears black. By concentrating a bright light on the sclera by means of a lens, we can make the pupil of a normal eye luminous, especially if the person has a fair complexion.

b. If, in the case of Fig. 125, the eye is not exactly focused for the luminous point, the latter illuminates on the retina a circle

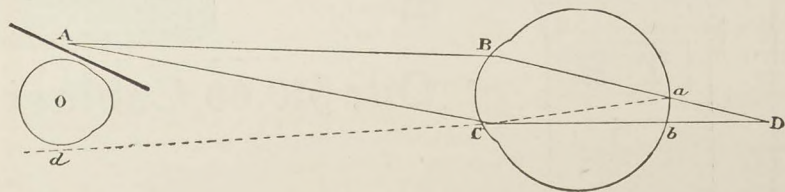


Fig. 126

of diffusion (*ab*, Fig. 126). This circle sends back the light not only in the direction of the luminous point, but also in neighboring

directions; thus the point *a* sends back the cone *BaC*, which, outside the eye, takes the direction *AB, Cd* so that the observing eye *o* may be placed in this cone. Placing a lamp at some distance from the observed eye and sighting near the border of the flame, from which we shelter ourselves by a screen, we can frequently see the pupil luminous, especially if it is a little large and if the patient does not fix the flame.

The experiment succeeds more easily if the observed eye is strongly ametropic, because then the rays, having emerged from the eye, soon diverge greatly, so that the observing eye may easily find a place in the luminous cone. If the eye is not ametropic we can make it so by means of a strong lens or by putting it under water, or, as Bellarmino has lately done, by placing a plate of glass in contact with the cornea so as to eliminate the refracting power of this membrane. By this latter means we can make the fundus of the eye visible for several persons at once. In the case of amaurotic cat's-eye, the presence of the tumor in the interior of the eye makes the latter strongly hypermetropic, so that the fundus becomes easily visible.

c. PRINCIPLE OF THE OPHTHALMOSCOPE OF HELMHOLTZ.—

Let *AB* (Fig. 127) be a plate of plane, parallel glass and *L* a lamp, which sends light towards this plate. The greater part of the light passes through the plate, but a part is reflected towards the observed eye *D*. It enters this eye and illuminates the retina. The latter sends back light towards the plate; a part of this light is reflected towards the lamp *L*, but the greater part passes through the plate and enters the observing eye *C*, which, consequently, sees luminous the pupil of the observed eye. To compensate for

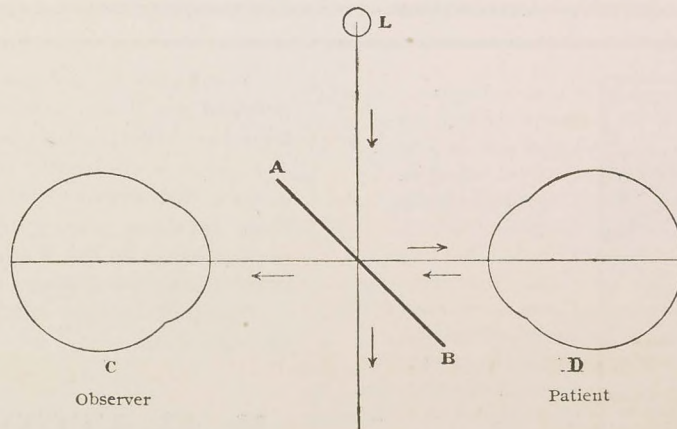


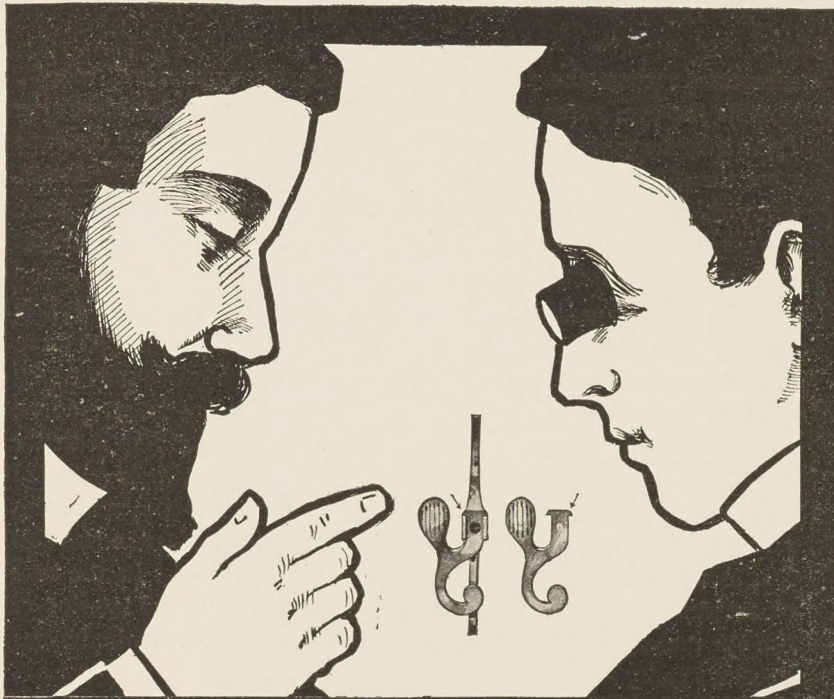
Fig. 127.—Principle of the ophthalmoscope of Helmholtz

the loss of light, which, proceeding from *L*, passes through the plate, Helmholtz used several plates, placed one behind the other.

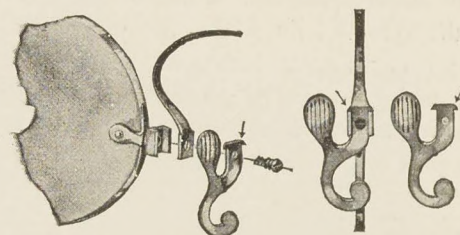
d. PRINCIPLE OF THE ORDINARY OPHTHALMOSCOPE.—We obtain a more intense illumination by means of a silvered mirror; the observer looks through a small portion from which the coating has been removed or which has been perforated. As a concave mirror concentrates the light it illuminates better than a plane mirror, and the latter better than a convex mirror.¹ Generally it is useful to have a good illumination; but we sometimes see better the very delicate changes in the fundus of the eye by using a weak illumination, and very delicate opacities of the vitreous body or of the crystalline lens disappear if the illumination is too strong.

¹The clearness of the retinal image of the flame which is formed in the observed eye is the same in all cases, but the image is larger when we use a concave mirror than when we use a plane or convex mirror. One can verify this for oneself by putting one's eye in the place of the observed eye. The image of the flame which one sees then in the mirror corresponds to the illuminated part of the retina; it is larger in the case of the concave mirror than with the plane or convex mirror. Placing the flame behind the mirror, one sees, in the same circumstances, the opening as a luminous circle, which corresponds to the part of the fundus of the eye which the observer can see at once (ophthalmoscopic field.)

[TO BE CONTINUED]



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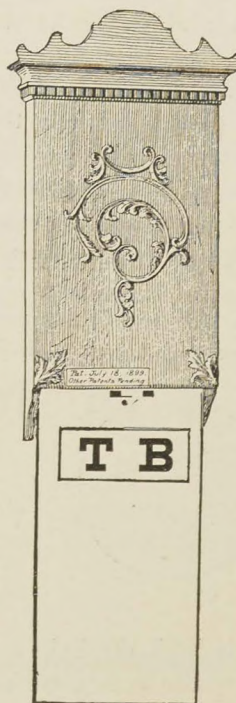
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Our \$10.00 Cabinet,

Showing blank chart with letters through opening. When this chart is down, only one line of letters is shown. This possesses every advantage of the \$12.00 Cabinet, except that it has no elevator. Each of its eight charts are balanced in any desired position by its own balance weight.

It cannot get out of repair. It always works. Ours is the only Cabinet containing a full subjective test.

Clinics in Optometry

(Continued from page 815)

We then turn the rod around to the vertical position, which causes the streak to be seen horizontally, and we ask the patient what position it assumes with reference to the light, and he replies that it passes directly through it. This indicates that the superior and inferior muscles are equally balanced and that there is no hyperphoria.

Inasmuch as the eyes are apt to vary slightly from day to day, it is well in almost any error of refraction, but especially in astigmatism, to repeat the examination. We therefore ask our patient to return to-morrow, explaining to him the care that should be taken in prescribing glasses. When he returns we make another examination along the same lines as before, and obtain the same result. We therefore feel that we are justified in prescribing the lenses we found as follows:

O. D. + .50 D. cyl. axis 90°.
O. S. + .25 D. cyl. axis 70°.

Which we advise to be worn constantly.

If the second examination had shown a different result from the first, we would have asked our patient to return a third time.

[TO BE CONTINUED]

New Jersey Optical Society

The first annual meeting of the New Jersey Optical Society will be held in the Continental Hotel, Newark, N. J., at 7.30 P. M. on Monday, May 2d. A committee of arrangements, consisting of F. C. Leaming, T. C. Bothman, R. G. Smith, F. H. Hewelett, L. A. Roach and Jos. J. Hartman, has been appointed. This committee has arranged for some very interesting speakers, and has decided to make this event a complete success. The most notable feature of the regular business will be the election of officers.

The society now numbers about 100 of the foremost opticians of the State, and it is hoped that there will be many more before the close of the next year. The society has already accomplished some good work for the New Jersey opticians, and its finances are in a healthy condition.

New York City Optical Society

The regular monthly meeting of the Optical Society of the City of New York was held on Wednesday evening, April 13th, in the Natural History Hall, College of the City of New York. In addition to a very large attendance of local opticians, there were also present a number of guests from Halifax, N. S., Binghamton and Newburg. Dr. Walter Bryan opened the scientific session with a lecture on "Errors of Refraction." He dwelt upon emmetropia, hypermetropia and myopia, their causes, symptoms, diagnoses, treatment and prognoses. The doctor invested his subject with considerable interest and will give a continuation at the next meeting, when he will take up the subject of astigmatism. Prof. R. M. Lockwood gave an interesting talk entitled "Some Odd Cases from my Note Book." The question box was a feature of the meeting that evoked

numerous instructive debates on matters of practical interest to the optician, and this brought the scientific session to a conclusion.

President Ryer occupied the chair at the business session, when the minutes of the March meeting were read and adopted, a number of bills ordered paid and the following applicants, who were proposed at the last meeting, admitted to membership: Theodore C. Munch and A. B. Yarrow, Brooklyn; W. Irving Vandegrift, Barnet Brauman, Otto F. King, W. Arthur Hohl and Paul Shapero, New York. An application for membership from I. Bergen, of Newburg, was laid on the table in accordance with the usual procedure. Mr. Frankel, of the executive committee, addressed the members on the subject of a special class. He stated that as only a few replies expressing a desire to join such a class had been received, he deemed it wise to abandon special class work and employ all talent for the benefit of the society as a whole, and in view of that would move "that the special class formation be abandoned." This motion was carried unanimously.

The chair appointed Messrs. Frankel, Lockwood and Ehrlich as a committee to make arrangements for the banquet by which the society decided to terminate its spring season. The meeting afterwards adjourned.

Chicago Optical Society

The Chicago Optical Society held a meeting on April 1st. This meeting was called to order by the president, and the minutes of the meeting held March 3d were read and approved. B. T. Hoffman and Alexander Saitz were admitted to membership, and Earl J. Brown, M. D., was made an honorary member. A motion was made and carried that the regular May meeting be the last before vacation, and that the society meet in September on the usual date.

Dr. Brown concluded his illustrated lecture, which, like all his preceding talks, proved of much interest. At the regular May meeting the members will relate their experiences with difficult cases. The attendance was the largest of any one meeting yet held by the society.

Kentucky State Optical Association

The second annual meeting of the Kentucky State Optical Association will be held in Louisville, Ky., on Tuesday, May 17th. There will be an afternoon and an evening session. On account of the May races, special railroad rates will prevail. This, together with a programme that is attractive from a social as well as professional standpoint, should insure a large attendance.

Minnesota Society Offers Prizes

The following circular has a special interest for Minnesota opticians and a general interest as a good example for other State associations:

Minneapolis, Minn., April 2, 1904.

The Minnesota State Optical Association offers premiums to the amount of \$20 for the four best papers upon the subject, "How Best to Care for or Prescribe for Imbalances of the Internal and External Recti Muscles," the premiums being as follows: \$10 for the best paper, \$5 for the second best, \$3 for the third and \$2 for the fourth.

Competition will, of course, be confined to members of the association, and each paper must

not exceed 2000 words. The papers must be presented at the next meeting in June, and if possible be read by the author. Notice of intention to contest should be filed with the secretary not later than May 10th. A committee of judges to pass upon the merits of the papers will be appointed by the president of the association on or before the time of the meeting, or the question of merit may be submitted to the vote of all non-contesting members who may be in attendance at the meeting.

Some features of the next meeting will be:

A course of four or five lectures of forty-five to ninety minutes each, by Clifford S. Friedman, formerly lecturer on refraction in the Northern Illinois College, of Chicago. These will be instructive, practical and altogether useful to each and every one of us in our regular practice.

Discussion of the subject, "The Enforcement of the Optical Law."

Amendments to the Minnesota optical law; these to be received, discussed and referred to a legislative committee, but not to be finally acted upon until the following meeting of the year.

Some interesting amusements for the entertainment of the association.

It has been deemed advisable to hold the June meeting in the Twin Cities, the date and other details to be included in a later circular, to be sent out in ample time for all to plan to go.

By order of the board of directors.

J. M. CHALMERS, President.

Attest: C. A. SNELL, Secretary.

Death of Professor David Ward Wood

David Ward Wood, professor of optometry at the Northern Illinois College of Ophthalmology and Otology, died suddenly on April 14th. He left his office on that day and went to a neighboring restaurant for lunch, but before he had even tasted the repast he sank down, dropped on the floor and died. The coroner's post mortem examination showed that his sudden death was caused by fatty degeneration of the heart. Deceased was of Anglo-Scottish extraction; he was born in Pennsylvania, the son of Auley McCauley Wood, and was educated at Bucknell University in that State and at the Albany Law School. Intellectually, he was variously distinguished. He practiced law for about ten years, during which time he was a writer for or editor of some of the most prominent papers in the country. From the age of eighteen he was a public speaker of note and was in great demand for patriotic occasions, sometimes being engaged for a Memorial Day address two years in advance.

In 1875 he came to Chicago with the intention of devoting his life to agricultural journalism. This profession he followed for over twenty-five years. About two years ago Prof. Wood became a member of the faculty of the Northern Illinois College of Ophthalmology and Otology as Professor of Optometry. To this work he brought a masterful mind and a zealous spirit.

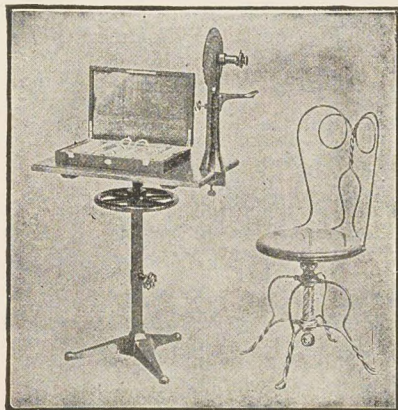
Among the tributes evoked by his sudden taking off are the following resolutions, prefaced by a touching preamble, which were passed by the faculty, students and Alumni Association of the college:

Resolved, That it is but a just tribute to the memory of the departed to say we feel that we have lost a most efficient instructor and friend who had at heart the welfare of each member of the class, faculty and Alumni Association.

Resolved, That we deeply sympathize with those who, as members of his family, were still nearer and dearer to him.

Resolved, That these resolutions be transmitted to the family of the deceased as a token of our respect and esteem, and that a copy be framed and hung upon the wall of his class room.

Five Reasons why our AMETROPO-METER is the Greatest Aid any Optician Can Place in his Refracting Room:



- First**—It detects and corrects accurately all errors of refraction.
Second—Patient as well as operator can tell positively when eye is properly corrected.
Third—Eyes can be examined in one-half the time required by any other system. Remember! *One-half!*
Fourth—It is the best trade-getter ever placed in a refracting room.
Fifth—It convinces the patient that he is properly fitted. This is worth millions, and is half the battle in making a sale.

Send for descriptive circular, and we will take chances on receiving your order for **AMETROPOMETER**.

Price, **\$20.00, net.**

Patented in all the leading countries.

Without question we are receiving more orders for the **AMETROPOMETER** than the combined sales of all other eye-testing instruments. We have sold nearly 1000 of them during the last fifteen months, and many purchasers have acknowledged receipt of the instrument with very flattering testimonials. We have space here to print only one, but copy of others will be sent upon request.

Johnston Optical Co., Detroit, Mich.

Portland, Oregon, Aug. 5, '03.

Gentlemen:—We have now used your **Ametropometer** for two weeks, and find it works to perfection. Several of our old customers coming in with new patients we have induced to have their eyes examined by this instrument, and find in every case it brings out same results as found and prescribed for them. For measuring myopia, hypermetropia and astigmatism it cannot be equaled.

Yours very truly,

PHILLIPS BROS.

Johnston Optical Co.

Leading Prescription House of America.

Detroit, Mich.

WESTERN OPTICIANS,

We Want Your Optical Orders and Prescriptions

We guarantee to give you the promptest service and most accurate work on your R. All R orders are sent out on the day received. We solicit the orders of all Western optical people, knowing that we will be able to give them the best of satisfaction.

A TRIAL WILL CONVINCE YOU.

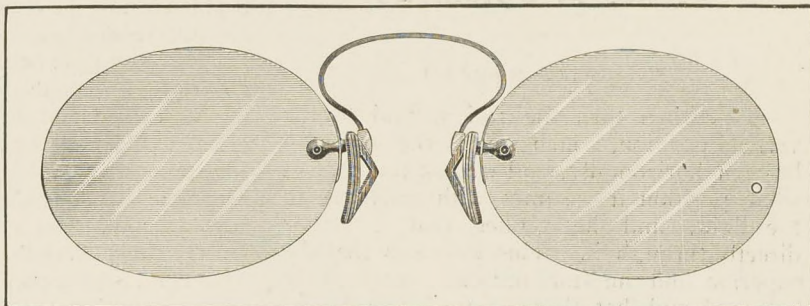
F. A. HARDY & CO.

Wholesale Opticians,

1606 Curtis Street,

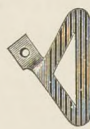
Denver, Colo.

A NEW PRINCIPLE.



The Mayer Triangle

The Guard that won't come off. Requires less spring pressure, has three bearing surfaces, less conspicuous, more comfortable.



| | |
|--------------------------|-------------------|
| 10 K. Gold, . . . | per dozen, \$7.50 |
| 10 K. Gold Filled, . . . | " " 2.00 |
| German Silver, . . . | " " 1.00 |

Less 6%.

Gross lots, less 20% net.

Sample Pairs, postpaid:

Gold, 75c.

Gold Filled, 30c.

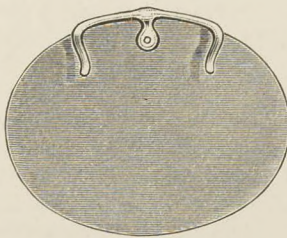
German Silver, 15c.

GEO. MAYER & Co.

MANUFACTURING OPTICIANS,

134 South Eighth Street,

PHILADELPHIA, PA.



The Glare Shade

This is the time of year that every dealer in optical goods should replenish his stock of smoked glasses. No stock is complete without the **GLARE SHADE**.

THE GLARE SHADE SLIPS OVER distance glasses. No annoying conflicting temples and bridges to irritate the nose and ears. Made in all sizes and shades.

In Nickel Silver Mountings, \$4.75 per dozen pairs.
 Mountings only, " " 3.00 per dozen pairs.

Order from your jobber or send direct to

Claflin Optical Co., Washington, D. C.

L. Manasse Co.

Wholesale and Manufacturing Opticians,

88 Madison Street,

Tribune Building,

Chicago.

Send us your orders and prescription work. We will fill them **at once** at the right price.

Wry-Neck and Spinal Curvature Due to Eyestrain

IN the following we reprint a few cases as reported by Dr. George M. Gould, of Philadelphia, in *American Medicine*. He is convinced that eyestrain may cause wry-neck, and even spinal curvature, and bases his conviction on the following cases observed by himself:

In 1901 a young woman of 18 years of age, was sent to me from a distance because of severe and protracted headaches, bloodshot eyes, blepharitis, and pains in the eyeballs. The state of her health had compelled her to quit school. She had breakfast-anorexia, and a poor appetite generally. I found her static refraction was:

R. + Sph. 2.50 + cyl. 0.37 ax. 90° = $\frac{28}{80}$ +
L. + Sph. 2.25 + cyl. 0.50 ax. 90° = $\frac{28}{80}$ +

without muscle imbalance.

There was no improvement in her general or special ocular symptoms by the use of the glasses that I had ordered. On account of the tuberculous history of her parents and of a continuous cough, I advised that she should be placed under the care of a general physician, to live out of doors, etc. I did not suspect that I had made a blunder in my prescription for glasses. Two years later, *i. e.*, in 1903, I could not find that any change was required in her glasses, although I made a careful retesting, again under mydriasis. I had evidently repeated my error, however, of two years previous. I then noticed a drooping of the right shoulder, an inclination of the head to the right and downward, a flat chest, round shoulders, etc., and urged that the girl should be placed in the care of a teacher of physical training, to correct these vicious conditions. This was finally agreed to, and Miss Devennie, of Philadelphia, took charge of her. As a result of her examination she found spinal curvature. There was no disease of the bone, and an orthopedic surgeon was not called in. Within a few days after systematic gymnastic training was begun the patient return to my office with a spontaneously-made and original discovery. It was announced in these words: "Doctor, when I straighten up and hold my head straight as you and Miss Devennie want me to do, I cannot see well." The explanation of the failure of the glasses to cure the headaches, etc., was at once plain, and still clearer the reason for the spinal curvature and torticollis. I had undoubtedly failed in accuracy to correct some odd axis of astigmatism. Painsstaking testing now showed that the astigmatic axis of the right eye was 90°, with the head slightly canted down and to the right, and that it was 75° with the head erect. In previous refractions I had stupidly allowed the girl to hold her head in this way while refracting the right eye. Immediate change of the right lens in her spectacles from 90° to 75° (there was no change in the amount of ametropia, and none in the axis of the left eye), produced the noteworthy result that she can now see well only with the head erect. When holding the head canted down and to the right, as formerly, she "cannot see well." While taking gymnastic exercises her teacher has noticed, without the girl's knowledge of the fact, that, being without the glasses, the head takes its former abnormal position and the right shoulder droops, the back becomes more humped, etc. With the glasses on, the erect position is at once assumed. The proof seems beyond question that the torticollis, drooping shoulder, bent back, flattened chest and spinal

curvature, are all the product of 18 years of the enforced habit of inclining the head in order to obtain clearer vision with the right eye through an axis of astigmatism differing 15° from that of the other eye in symmetry.

Moreover, since the change in the right lens was made, and the erect position assumed, the patient has been suddenly and entirely relieved of a pain in and about the sternum, which for many years had given her much uneasiness. This pain was not constant, but came on with exercise, deep breathing, coughing, etc. She had not spoken of it much, because of the disinclination to allude to the "consumption" which it was supposed to indicate.

It is needless to add that the headaches, anorexia, etc., which the former glasses failed to cure have also disappeared with the placing of the right axis at 75° instead of 90°. I think this is primarily due directly to the correct lens, which has abolished the reflex, but of course there is a secondary result from the proper position of the body, increased lung-capacity (which is demonstrated), better oxygenation of the blood, etc. The spinal curvature is rapidly disappearing, the head is habitually held erect, the shoulders and back are almost normal and the general health perfect.

The following additional case is confirmatory evidence of the theory:

A patient, herself a professional physical training expert, a woman of 25, of perfect physical form and health (except occasional ocular reflexes) tells me that, for several years, at about the age of 16 to 19, she had a decided curvature of the spine, diagnosed by excellent physicians. She also had torticollis. By the most careful and long-continued physical training under experts in physical culture the head was brought to a normal position and the spine made perfectly normal. She now has a very high degree of astigmatism both axes at 170° — a defect which would not allow binocular fusion with the head in the normal position. I take it that the results of the several years of arduous training could have been more easily and quickly secured by cylindric lenses at proper axes. Several girls in the same college class with my patient had torticollis and spinal curvature, which has persisted despite all efforts and training, and one of these at least has endured years of wretchedness from headache, sickheadache, etc. (eyestrain reflexes), while her wry-neck and curvature have become worse. I have also had a case that cannot be described as one of torticollis, but rather of abnormal position of the head. This patient, a man of 25, has held his head in the position to be described so long as he can remember. The head is thrown backward in a constrained and unnatural position, and also to the left side. In refracting him it was impossible for me to get him to hold the head downward and forward in a normal position. In a second or two after placing it so, it would return to the retracted and noticeably unnatural poise. This led me to examine the ocular muscular imbalance more accurately, and I found that most rare anomaly which has been called "cyclophoria." He had never had diplopia, but the axis of vision of one eye was so far below and to one side of that of the other that it was only by this abnormal and constrained position of the head that they could be fused and diplopia thus prevented. The patient said that this position of the head prevents him in walking from seeing the ground for some distance in front of him; it also necessitates his holding his book or paper very high. He has never had the usual reflex symptoms of eyestrain, and has only a moderate degree of

compound hyperopic astigmatism without anisometropia. Prisms equal to 6° base down right, axis 100°, fused the two images, added greatly to the clearness of vision, and enabled him to hold his head in a normal position. He was right-eyed, with equal acuity of vision. He had never had any spinal curvature.

In order to illustrate the ease with which the ocular cause may be overlooked, he gives the history of another patient:

A young man was brought to me in 1901 by his father. He had evident symptoms of eyestrain. I found the following error of refraction:

R. — S. 0.25 + C. 5.25 ax. 75°
L. + S. 0.50 + C. 6.00 ax. 75°

This ametropia was properly corrected. The father incidentally remarked that the boy had spinal curvature. I had noticed that he had a malpoise of the head, but I was too stupid to recognize its significance. I recommended that the boy should be placed in charge of a good orthopedic surgeon. Dr. H. Augustus Wilson was consulted, verified the diagnosis of spinal curvature, and, by proper treatment, the spinal abnormality and malposition of the head have entirely disappeared. Dr. Wilson had also in mind the possibility of the spinal trouble being due to the eyes, but as the patient was referred by an oculist, he undertook the correction of the defect by orthopedic methods only, and said nothing to me of the possible cause, the ametropia. There is no doubt as to the truth of the theory in this case, and almost none, also, as to the fact that without the correction of the ametropia there would not have been so speedy a cure of the spinal malcurvature.

After citing some cases reported by Drs. Stevens, Bradford, Wadsworth, Lovett, Risleya and Young, Dr. Gould expresses his conclusions as follows:

1. Habitual abnormal position of the head is frequently the cause of spinal curvature.
2. These abnormal positions may be due to some error of refraction, which necessitates the torticollis, wry-neck, cant or depression, in order to secure clearer vision.
3. The error of refraction is usually a slight asymmetry of the axes of astigmatism, whereby the clear-seeing or most-used eye (usually the right in right-handed persons), has an axis 10° or 15° to either side of 90° or 180°, *i. e.*, at about axes 75°, 105°, 165° or 15°.
4. The heterophoria, which has been the supposed cause of the functional torticollis, etc., is itself usually a result of the refractive error, proper correction of which, at a sufficiently early age, cures the heterophoria, the torticollis, and the spinal curvature.

Tscherning's "Physiologic Optics"*

In regard to the translation of the above famous work, the *Journal of Ophthalmology* says:

This excellent treatise could not have found a better translator into the English language than Dr. C. Weiland, who himself is a well-known writer in the same field. It is based on Tscherning's original investigations, and this edition is enlarged and revised by the author. No oculist can afford to be without it.

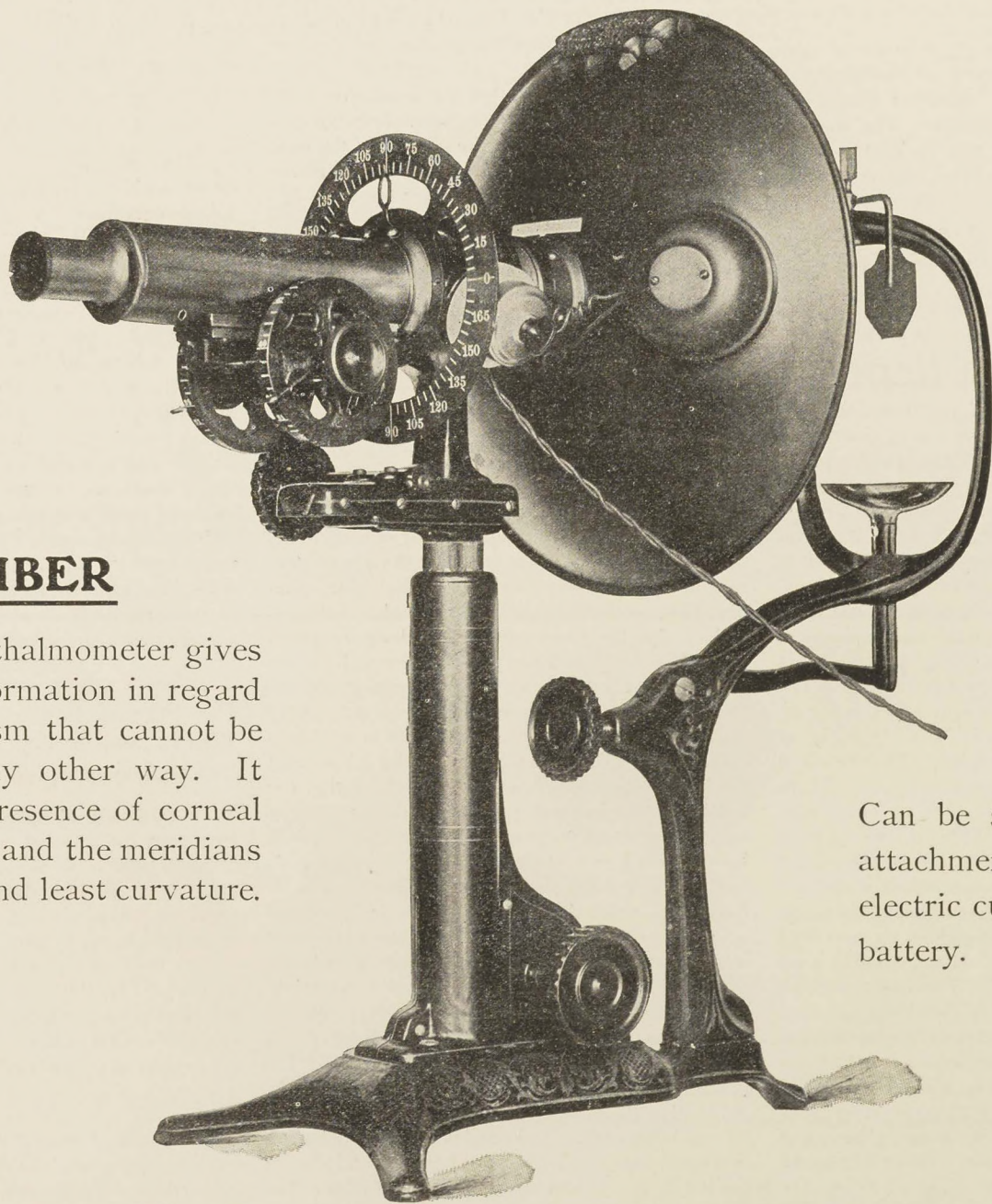
* "Physiologic Optics" is published by THE KEYSTONE and will be sent postpaid on receipt of price, \$3.50.

An Ophthalmometer is a Necessity for the Careful Refractionist.

It Saves Time and Insures Accurate Work.

REMEMBER

The Ophthalmometer gives valuable information in regard to astigmatism that cannot be found in any other way. It shows the presence of corneal astigmatism and the meridians of greatest and least curvature.



Can be supplied with attachment for city electric current or with battery.

The **C.I. Ophthalmometer**, shown above, is in use in over a thousand offices and has met with the greatest success. It is scientifically built, well finished, and besides its acknowledged utility as an instrument of precision that no refractionist can afford to be without, gives a professional tone to the office that is invaluable.

For Sale by All Jobbers.

May 1, 1904.

Please
mail me pamphlet
descriptive of the
C. I. Ophthalmometer,
together with price, etc.

Name, _____

Address, _____

CUT HERE AND MAIL TO YOUR JOBBER. IT WILL PAY YOU

Optometrists as Advertisers

AS the optometrist is a comparatively new figure in professional and business life, it is only natural that his advertising should be distinctive if not unique. His methods of publicity, indeed, furnish an example of the advantage of starting out unencumbered by convention. This advantage has been one of the principal factors in the progress of the nation at large, and it has had much to do with the progress of the optician. But there is another reason for the originality and intelligence which usually distinguish optical publicity in the fact that the refractive business is a peculiarly educative one, necessitating on the part of those engaged in it a thorough acquaintance with

A Mere Spectacle Vender Is Not an Optician.

He is a particularly dangerous quack; he should be even more shunned than the empiric in medicine. There is many a quack who may ease your rheumatism. But there is not one chance in a hundred that the spectacles bought from a peddler will help your eyesight; there are a hundred chances that they will hurt your eyes, hurt them seriously, too. It is very important that your glasses should be exactly correct.

If you are in doubt regarding your glasses, consult our Graduate Optician; he will examine your eyes free of charge and advise you honestly.

S. M. NATHAN,

258 Main Street, Y. M. C. A. Building.

We make the glasses complete in our own factory.

a very fascinating science, whose importance to the public has grown coincidently with the demands made upon human vision by our modern industrial development. Then again, the opticians are an organized body, having well defined ideas of progress, and what more logical than that one of the results of their co-operative striving for a higher standard of proficiency should be advertising that states the merits of the individual optician in terms worthy of an aspirant to professional recognition? Here we would utter a word of caution to the optician who, impatient of slow progress, risks his prestige by extravagant statements of the bargain-counter and auction-room variety. The eyes are a portion of the anatomy that few, if any, care to have treated on the cut-price basis, and it is not the wisest policy for the optician to cheapen his calling by depending upon price reductions as a business bait. However rampant the bargain mania may be in regard to wearing apparel, etc., the irrepressible instinct of self-preservation imparts a salutary sedative to it in all matters involv-

ing the treatment of bodily imperfection. The advertising optician should bear this in mind and manifest in his announcements such a sense of responsibility as will earn for him a professional prestige, inspire confidence in the minds of prospective customers and bring home to the community the absolute need for eye examination that is based upon a

Dr. H. P. Holmes.



MISS NINA KNOWLAND,
Stenographer for Weeks Medicine Co.,
joyfully admits that Dr. Holmes
was correct. She says:

"I haven't had a headache since I put on my glasses. I suffered almost constantly for months without knowing my eyes were the cause. Dr. Holmes' diagnosis was correct."

NINA KNOWLAND,
1021 Locust St.

Miss Knowland, like many eye-sufferers, has perfect vision without glasses. For this reason she thought her eyes could not be the cause of her trouble. People who cannot see are easily persuaded that they need glasses. It is a fact, however, that there are thousands of people whose vision is perfect who suffer from eyestrain.

No one but a competent ophthalmologist can measure your eye defect and correct it. Dr. Holmes is thoroughly competent and absolutely reliable. Examination free.

HARRY P. HOLMES,

Oph. D.,
Suite 230 Utica Building,
6th and Walnut

scientific system whose accuracy has been assured and in which there is neither guess-work, chance-work, doubt nor experiment. Nothing can more militate against the professional aims of the optical fraternity than undignified advertising. Vaunting asseverations and sweeping guarantees are more likely to defeat their own ends than to result in any permanent good either to the individual optician or to the calling of which he is a member. Instead of establishing for him the reputation of being a skilled refractionist, these methods are rather calculated to create doubts as to his sincerity and get him stigmatized as a pretender and a quack, and in the present scientific age the last-named

institution finds itself anathematized on all sides, by the opticians themselves no less than by the public generally. The rectification of visual defects is a serious and critical occupation; necessarily it has certain commercial elements, but they must not be allowed to predominate if the optometrists would attain the goal for which they are so earnestly and successfully striving.

We show on this page three advertisements, each of which differs in character from the other. The spectacle peddler is an excellent subject for a good hammering in optical advertisements, because much trade is lost and much discredit engendered

An Eye Point.

If you want perfect vision, you should have your eyes examined often. A slight correction promptly attended to may insure you perfect eyes to the end of your life!

We will measure your eyes—overcome the defects—and insure you most satisfactory vision.

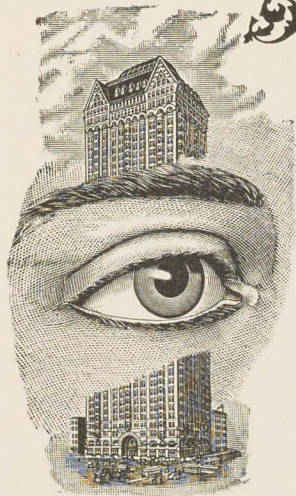
The S. Galeski Optical Co.

901 East Main Street.

by this parasite on the profession. Advertisers will find it to their advantage to educate and warn the public on this matter.

A somewhat unusual advertisement for an optician is the testimonial ad. of H. P. Holmes with portrait. The testimonial form of advertising may be much overdone in some fields of publicity, yet it has lost none of its force, especially when a well-known member of the local community is the author of the testimonial. The Holmes advertisement is decidedly good publicity, and it is not surprising that the opticians are now using testimonials more liberally. We notice that many opticians use testimonials from friendly oculists, and these must be especially effective. The testimonial is well worthy the attention of all advertising opticians.

The third advertisement here shown is a good sample of the more usual form of optical announcement. It is pointed, forceful and effective. We are pleased to notice the improved character of optical advertising generally.



Masonic Temple,
The Home of the College.

The Northern Illinois College of Ophthalmology and Otology

Masonic Temple,
CHICAGO.

The Leading Optical College of the World.
Largest and Best Equipped Optical College.
With a Faculty of Practical Teachers engaged in PRACTICAL OPTICS.

WE TEACH YOU HOW TO FIT GLASSES.

Life Scholarship, \$25.

Includes Correspondence and Attendance Courses as often as desired. Enter at any time.

WRITE FOR ANNOUNCEMENT.

1904 now ready.

G. W. McFATRICH, M.D., Secretary,
Masonic Temple, Chicago.



WE ARE LEADERS, AS USUAL.

A Few of Our Winners—
Fine French Enamel Pins and
Highest Grade Chain.

Our 20-Year Frames are the best yet. Stamped B. S. O. Co. Ask for them.

BAY STATE OPTICAL CO., Attleboro, Mass.

A Thermometer Catalogue

SOMETHING NEW. JUST OUT. A CATALOGUE FROM WHICH YOU CAN DO BUSINESS IN A LINE YOU MAY NOT CARRY IN STOCK.

Our new catalogue is the only complete one published, listing and illustrating

Thermometers, Barometers,
Hydrometers, etc.,
Artificial Human Eyes,
Hypodermic Syringes and Needles,
Sundries of All Kinds Related to Above Lines.

If interested, send us your name, as we wish to complete our mailing lists by April 15th.

The R. Hoehn Co.

Manufacturers of Thermometers, Barometers and Hydrometers,
I. MAYER & CO., Proprietors,

80-82 Chambers Street, NEW YORK.

The American Association of Opticians

The committee on transportation has secured railroad rates of one and a third fare for the round trip to Milwaukee on the occasion of the annual convention of the national organization which will be held in that city August 1st to 4th.

The St. Louis Exposition has named August 9th, the Tuesday following convention week, as Opticians' Day. An auditorium has been placed at the disposal of visiting opticians, and a reunion is planned. The programme for this reunion is to be announced later.

The committee on arrangements for the annual meeting are hard at work on the programme for the occasion, and a great treat is in store for the convention.

The Iowa Test Case

ED. KEYSTONE:—In regard to the case against optician J. W. Edmunds, reported in last month's KEYSTONE, the indictment charged him with practicing medicine contrary to law "by dieting his patients and causing them to take certain exercises, and to wear glasses and spectacles which he furnished." The part quoted was the point of attack under the demurrer; it being the contention of the defendant that the acts complained of could not constitute the practice of medicine in any sense, and could not even constitute a general system of treating and healing human diseases. At the first trial the court, Judge Whitaker, after an exhaustive argument overruled the demurrer and held that such acts might constitute the practicing of medicine within the meaning of the Iowa law, and particularly within the meaning of the acts regulating the practice of medicine. On the same question his instruction to the jury is in part as follows: "It is not necessary for the State, in order to substantiate the charge made in the indictment, to show that the defendant prescribed medicine or drugs for diseases or ailments of different persons, but if you find * * * that he prescribed, recommended or advised the wearing of certain eyeglasses or spectacles * * * as a treatment for the cure or healing of certain ailments * * * then the defendant would be a practicing physician as contemplated by the laws of Iowa and the indictment in this case."

A literal following of these instructions would have meant "guilty," but the jury disagreed. At the second trial the attorney for the defendant again demurred to the indictment. The second argument covered substantially the same ground as the first and the court, Judge Richards, at first seemed to hold the same opinion as Judge Whitaker, but before the jury was fully selected gave the following ruling:

"The specific things or acts alleged in the indictment do not constitute or lie within what is known or understood as the practice of medicine or surgery; hence the chapter (relating to the practice of medicine) does not apply to them; they are not forbidden by law, and therefore the indictment does not charge an offence under the laws of this State."

Should the ruling of Judge Richards be sustained in the Supreme Court, it will certainly stop all further prosecution of opticians in the legitimate practice of their profession in Iowa under the medical law. Should the ruling of Judge Richards be reversed in the Supreme Court it would probably effect but little change in the present conditions, yet it would probably make the position of those of the profession that are most aggressive in their claims and advertisements less secure from prosecution.

The whole matter will be presented in the fullest detail possible at the June session, in Des Moines, of the Iowa State Association of Opticians, at which time we hope to have a very full attendance of its members, and to which meeting we also extend a very earnest invitation to all practicing opticians of the State.

W. B. ANKENY,
President Iowa State Association of Opticians.
Corning, Iowa.

Colors in the Testing Room.

In repapering or recoloring walls of a testing-room it is well to consider every little influence which may tend to success or failure in certain cases which crop up now and again. The physiological side of the question has always been fully recognized, and neutral or dull tints are chosen. A peculiar warm softening influence seems to go with the deeper shades of the red end of the spectrum, especially that tint known as "madder brown." There is, however, a mental side which is too often neglected, and it is here where improvement may be effected. All patterns are best avoided; scrolls, flowers or designs arrest the attention, and particularly when they become obtrusive on a floor covering. The object should be to impart the idea of distance, and for this purpose horizontal lines are best—if lines there must be—all leading from the eye to the type. It is astonishing what a difference is experienced in running the eye along two walls, one with vertical and the other with horizontal lines upon it; there is a gliding motion in the one instance, a jerky one in the other, the gaze being arrested by every vertical line. Again, the eye wanders along a horizontal line from "near" to "far," rarely the reverse, but it will look with equal readiness from "far" to "near" with the vertical lines, and in addition there is always a tendency to focus the vertical rather than the horizontal on account of the great part they play in ordinary vision.

—British Optical Journal.

School Hygiene of the Eye

J. W. Sherer, in the *St. Louis Medical Review*, emphasizes the importance of examining the eyes of every pupil before systematic study is undertaken in order to discover and correct any defect of vision that may exist. The other important points that should claim our attention are: (1) Light; (2) the position of the body during the hours of study; (3) amount of near work to be done; (4) type used in school books.

Light should come from above and to the left; there should be sufficient illumination to enable an eye with normal acuteness of vision to read diamond type at fourteen inches in the darkest part of the room on gloomy days.

The author agrees with Risley, who favors a southern exposure (rather than Norris, who favors a northern), because he believes that every apartment that is regularly occupied should be flooded with sunshine. When artificial light is necessary he prefers the electric incandescent lamp enclosed in a lightly-frosted globe which conceals the film, and produces a diffuse light.

As to desks, the adjustable variety should be used as well as an adjustable seat. Both should be adjusted so that the pupils feet rest comfortably on the floor and the arms on the desk, without elevating the shoulders or leaning forward.

As to the amount of near work to be done, the author makes a plea for as frequent intervals of relaxation as the nature of the study will allow, the younger the pupil the more consideration he should be shown.

Optical Notes

✿ Mr. and Mrs. W. E. Slater have opened an up-to-date optical office at 60 South Street, Utica, New York.

✿ R. S. Gitt, of Harrisburg, Pa., adopts unique methods of advertising his optical department. An idea was recently originated by R. I. Deihl, of that establishment, which proved very catchy and effective in exploiting that end of the business. It was in the nature of a puzzle and much interest was aroused in its solution.

✿ E. Kirstein Sons Company, Rochester, N. Y., obtained an injunction against Cohen Bros., of Toronto, Ont., restraining them from using the trade mark "Shur-on," which was spelled "Shure-on." This company has just issued several price-lists and a catalogue, which the trade will find useful for reference and ordering.

✿ One of the features of the recent annual meeting of the Ohio Association of Opticians was an exhibit of optical instruments, in which the lines of the following firms were represented: White-Haines Optical Co., E. Klein, with Kryptok lenses; Murine Eye Remedy Co., John Key Optical Co., W. H. Reisner Co., lens measurer, and the Mincer axis finder.

✿ Geo. W. Magee, of McIntire, Magee & Brown, manufacturing and wholesale opticians, Philadelphia, Pa., recently returned from a trip to Europe. Sunny Italy had a special charm for him, as it has for most other travelers, and he visited Rome, Naples, Genoa and other points of interest in that country. The trip Europewards was made on the *Princess Irene*, while the homeward voyage was made on her sister ship, the *Hohenzollern*, both of the North German-Lloyd line. Mr. Magee greatly enjoyed and has been much benefited by his trip.

✿ The Bausch & Lomb Optical Co., of Rochester, N. Y., has perfected plans for the enlargement of its plant on St. Paul Street. The space in front of the present factory, as well as that which adjoins on the north side, will be occupied by a new building, three stories high, running 470 feet on St. Paul Street, with a depth of 40 feet. This building will be used for office quarters. It will be connected with the main structure by means of a court and will be replete with modern improvements. The offices in the old building will be converted into work departments, thus affording the additional space which the increasing business of the company demands. It is estimated that the cost of enlargement will be about \$150,000.

Free sample pages of lectures and lessons of the Correspondence Course in Optics will be mailed to readers of THE KEYSTONE on application to The National College of Optics, Cedar Rapids, Iowa. Ask for special price for May. —Adv.

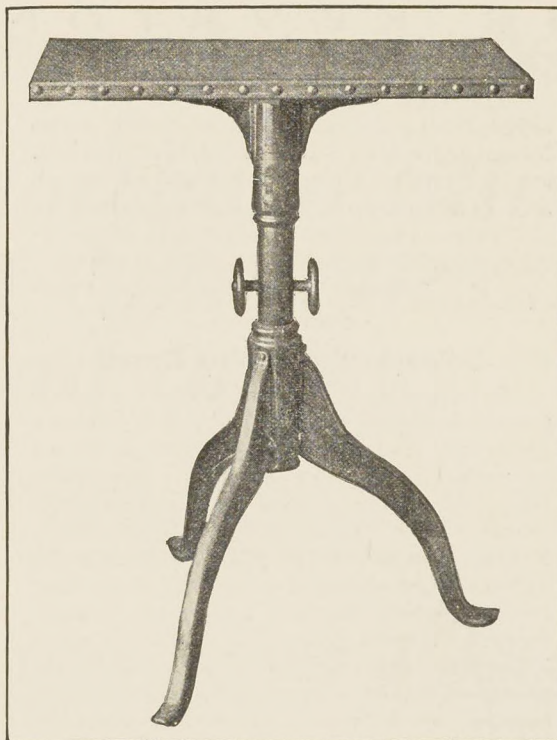
Cementing Bifocals

For cementing bifocal lenses in spectacle work it is an undoubted advantage to use the dried Canada balsam re-dissolved in some suitable solvent. Zylol is a favorite substance, though its advantages over benzol are doubtful, and it is less rapid in drying. Of the three substances, benzol, zylol and toluol, the order of merit for rapidity of evaporation and consequently speed of drying is the order in which they are written. Benzol is easily obtainable everywhere and, as before stated, it does not appear that zylol has any properties as a solvent of balsam that benzol does not likewise possess, and it is a worse drier.

—British Optical Journal.

THE MIDLAND TABLE

No Weights
or Cranks.



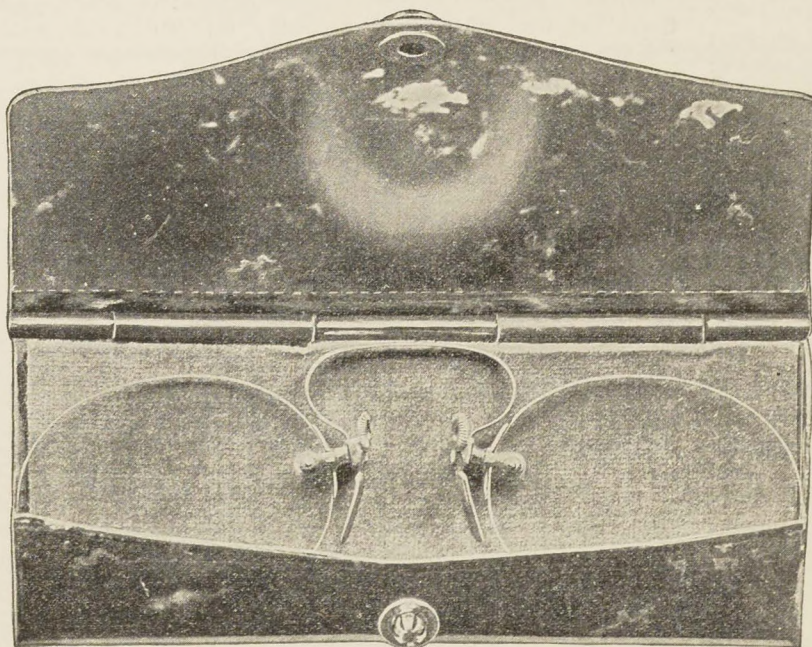
Specially designed
for
Refractive Work
and
Office Purposes.

The mechanical construction, height adjustment, symmetrical appearance and finish of the "Midland" is superior to any table on the market, the metal body being finished in black enamel and the top (16 x 24 inches) covered with dark green morocco line leather, giving a handsome and durable effect.

Price, **\$9.00** each, subject to a cash discount of 6%.

Weight, 65 pounds, safely boxed for freight shipment.

Tortoisette
Shell.



Velvet-
Lined.

We herewith present to the trade something ENTIRELY NEW, HANDSOME and DURABLE in EYEGLOSS CASES.

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| PRICES { | Lettered, | Not Lettered, | Not Lettered, |
| | \$33.00 per gross. | \$2.75 per dozen. | 25 cts. each. |

Send us an order and be the first to show your patrons this desirable article.

MERRY OPTICAL COMPANY, Manufacturers and Jobbers,

1009-1011 Walnut St., KANSAS CITY, U.S.A.

Influence of Environment on the Eye

Paper by HAMILTON STILLSON, M. D., read before the American Academy of Ophthalmology.

GRANTING that acquired traits may be transmitted, would it not be well to impress upon our minds the importance of the effect of daily environment upon the eye, such effects as come from occupation, climate, habits, etc.? The eye in its embryological development is formed by a juxtaposition of two saucer-shaped layers. The eye then is, as a rule, at birth hyperopic (perhaps astigmatic); and over-use of the eye in early childhood tends to deform it more.

The statistics looking towards the effects of occupation upon the production of myopia are not yet sufficiently studied to warrant a definite conclusion, but we might say in general terms that the prolonged use of hyperopic or emmetropic eyes at near vision will tend to the production of myopia. The infrequency of myopia among watchmakers may be accounted for by the fact that, as a rule, watchmakers use a microscope before one eye in viewing the object manufactured.

School Life and the Eyes

But the prevalence of myopia among students is proverbial. The effects of school life upon the eyes are dwelt upon at length in the text books, and we may safely relegate this part of the subject to the text books. But I cannot refrain from quoting one or two pregnant remarks. Risley, in Norris and Oliver's "System of Diseases of the Eye," sums up the production of myopia in school life by saying: "The obvious association of the increasing percentage of myopia with the work of the schools seemed naturally to fix the responsibility for the disease upon the educational process, and led directly to efforts for the discovery and reform of faulty educational methods." And again, "The obvious lesson that our children dwell upon their educational training at a too tender age, and that during the first years at school the methods of instruction should be so modified as to avoid as far as possible continuous work at a near point."

The manner in which miners acquire nystagmus has been well observed. The semi-darkness of the mine, the semi-recumbent position of the miner with his head diagonally upward, and the constrained position of all the muscles including those of the eye, produce such a want of harmony in the ocular muscles as can only be expressed by nystagmus.

The Eyes of Potters

I, myself, have observed that among the old-school potters there usually exists a high degree of hyperphoria. The position of the potter at his lathe is semi-recumbent; he stands upon his right foot with his body leaning upon a back-rest. His left foot is pressed against the tread of the lathe, while his head is bent forward toward the right and his eyes look into the vessel that is being turned, and into which his right hand is inserted. This produces habitual torticollis and a hypertrophy of the lower left rectus and the right upper rectus. A right hyperphoria of four degrees is not uncommon among such potters.

I seem to have noticed also a great prevalence of high degrees of astigmatism among the sisters of charity. These nuns usually wear a head-dress shaped like an old-fashioned sunbonnet, the front part projecting from four to six inches in front of their faces, and is lined with white. With such blinkers on, the sisters can only look straight forward or demurely down. There is, therefore, little lateral pressure against the eye-balls, and if the sister has entered the service early in life, high astigmatism seems inevitable. At any rate, in my observation, astigmatism is quite prevalent among them.

We are all familiar with the type of ocular fatigue produced by a change of residence from the country to the city. The visitor from the country unaccustomed to glancing rapidly from side to side at closer range than usual, soon fatigues the ocular muscles, producing a nausea somewhat similar to that produced in some cases by a ride upon a street car.

Eyes of Typewriters

A similar condition is often brought about by the amateur typewriter. The frequent movements of the eyes from the copy to the keys of the finger-board soon produce incoordination. This confusion seems to be produced more rapidly if astigmatism exists, and if the keys be round. Some manufacturers of typewriting machines have noted this fact, and now manufacture their machines with octagonal or square keys instead of round ones.

Many other disturbances of the eye from occupation will doubtless occur to you.

I wish to refer to the effect of change of climate upon the eye. I seem to have noticed that persons who have migrated from the South to the North have much more difficulty with their eyes than persons who have migrated along the same parallel of latitude. The population of the Puget Sound district, for instance, is very cosmopolitan; many of the inhabitants are from the Southern States, many of them from

Mexico. Many of them, indeed, migrate in the summer months to Alaska and return. The effect of this North and South migration, especially during the first few seasons, seems to be productive of retinal congestion, or optic neuritis. This, of course, would be particularly the case if the patient suffered from snow-blindness during his visit to Alaska, and the neuritis would then be accompanied by conjunctivitis and corneitis.

Climate and the Eyes

Another peculiarity is the effect upon these patients of a change from a sunny climate to a cloudy one. The north Pacific coast is foggy and humid. This humidity seems to chill the surface of the body, preventing perspiration. To a person accustomed from infancy to rapid perspiration (such as would be produced by a warm, sunny climate), there would exist a demand for increased activity from the kidneys, and the demand is often greater than the kidneys can comply with. In consequence of this the kidneys often become inflamed and unable to perform their function. Retained products of waste very frequently produce retino-chorioiditis and optic neuritis. So, too, in regard to the use of the eyes in this foggy atmosphere; a person accustomed to bright skies finds it difficult to use the eyes at prolonged near work in a climate whose skies are usually overcast by cloud. So that while persons from Scotland, Ireland or Scandinavia have very little difficulty in accustoming their eyes to the climate of Puget Sound, those from the Mediterranean, the Southern States and Mexico, have great difficulty in doing so.

I ought to observe, however, that the Scandinavians in migrating to the Northwest country suffer degeneration in other ways. Dr. Ivar Janson, in the *Northwest Medicine*, gives a very graphic account of his observations upon his countrymen. He mentions the fact that while confined to their mountains in northern Europe these people live an Arcadian life, becoming vigorous, large and well proportioned, remarkably free from disease. Yet upon migrating to the Northwest there is a rapid degeneration physically and mentally. "The proportion of Scandinavians in the hospitals for the insane is quite appalling. And tuberculosis seems to make up for lost time for past immunity. I give tuberculosis 25 per cent. of the dead of the first descendants of people whose environments had formerly been staple and fixed."

In the far north—in Alaska, for instance—the monotony of the long dreary nights in winter induces profound neurasthenia, particularly in women; and in all classes prolonged confinement indoors makes injurious impression on the eyes.

42 N. Broad
Street.

JOHN L. MOORE & SONS,

Wholesale, Manufacturing, Importing Opticians.

Atlanta,
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From the first this Prescription Department has worked along the lines of progress.

Its success is ample proof.

For from one business year to the next, and the next, to hold patronage straight through despite competition, despite the tendency of buyers to change about, means nothing else but quality and prompt service.

And the same progressive service that has enabled us to retain our customers indefinitely, will hold you, because it is infinitely good.

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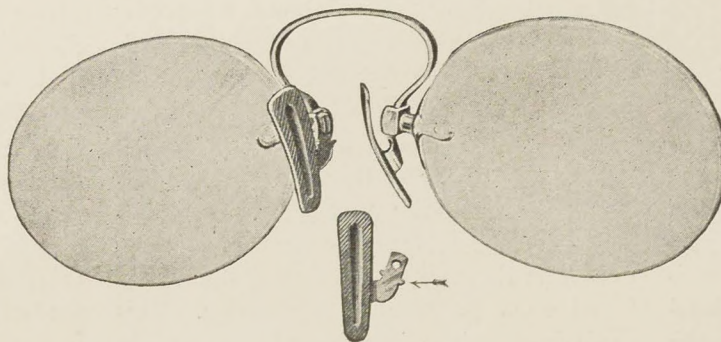
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Easy to keep clean and practically indestructible.

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Specialty.

Send two-cent
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new Celluloid
Protractor and
Measuring Card,
FREE.

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736, 738, 740 Sansom St., PHILADELPHIA.

Developing in the Dark

ONE of the greatest of the many puzzles in connection with the practice of photography, says the *American Amateur Photographer*, is why so many of more than average intelligence, and whose "want to know" has resulted in a more than average acquaintance with things in general and an intimate knowledge of most that more particularly concerns themselves, are content to go through all their photographic operations with as little knowledge of the qualities and quantities of the material as has the postman of the contents of the letters he brings to their doors?

Nor is this ignorance confined to developing and the material employed therein, but it extends to everything included in all the various solutions employed; although the exigency of space prevents our, at present, dealing with more than the developing material.

Ignorance of Developing Agents

From a pretty extensive intercourse amongst photographers, or at least camera carriers, we are safe in saying that at least fifty per cent. of them know absolutely nothing more about the developing material they use than that it comes in one bottle to be diluted with so much water, in two bottles which for some, to them, unknown reasons are sometimes mixed in different proportions, or in one or two powders to be dissolved in water when required, and as often as not they go from friend to friend to find the cause of the black spots arising from plates having been placed in the solution before the powder was all dissolved. More than half of the remaining fifty per cent. make up their own solutions, but as most of them use the formula given by the makers of the plates they use, they take so much of this and so much of that in the prescribed quantity of water, never giving a thought, and indeed seeing no reason for giving a thought to how it pans out; and such may have used the same formula for years without being able to tell how many grains of the reducer or of anything else there is per ounce of the developer.

For this state of matters the dealers and plate makers are mainly to blame. The dealer knows that the easier he can make photog-

raphy the more cameras he will sell, and finds the putting up of "ready made" developers a profitable occupation; while the plate maker, for reasons not easily discovered, followed suit, or rather led in the van, the dry plate coming before and bringing with it the popularity.

Whatever be the cause, the fact remains that with the advent of the gelatino-bromide plate came what, for want of a better name, may be called the slumping of developing formulæ; the "A and B" or the "No. 1 and 2" solutions, either ready for use when mixed in equal parts or with so much water added; and so arranged that only by a mathematical calculation could the photographer learn the relative proportions of the various ingredients to each other and to the water employed. While it is possible that such calculations were sometimes made we have never met a photographer who had done so, and we have asked hundreds; the invariable reply being that they had used Carbutt's, Cramer's, Seed's or that of some other plate maker.

The Gelatino-Bromide Plate

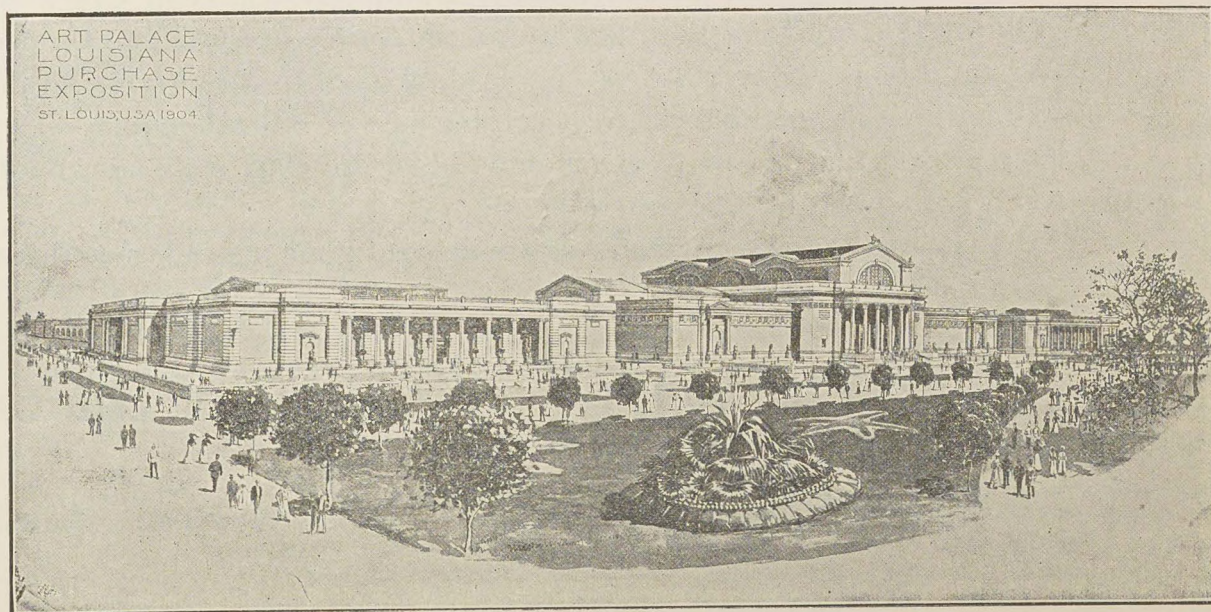
As we have said, this state of matters came in with the gelatino-bromide plate, as previous to that time formulæ were always given in such a way as to enable the photographer to see at a glance the relative proportions of every article that entered into them; generally the number of grains per ounce; or, what we consider still better, in parts. And it makes a mighty difference. All the difference between groping in the dark and working in broad daylight; the difference between knowledge and ignorance, or between hoping for success and knowing how to bring it. But convenient and satisfactory as the per ounce

method is, we very much prefer formulæ in "parts," although, strange as it may seem, we have several times been asked what or how much is a part. One unit in any kind of calculation is always simpler than where there are several, and a part stands for anything depending on the ultimate quantity required from grains and minims up to pounds and gallons.

To the amateur who takes to photography for the pleasure it gives; to know what he is doing should be especially interesting, as however much he may enjoy the almost creative-like appearance of the image in the developing solution, the pleasure will be ten times greater if, instead of "trusting to Providence," *i. e.* hoping it will *come* all right, he knows the proportions and properties of each of the constituents of the developer and *feels* that he can control and modify them so as to *bring* it out all right.

Duty of Plate Makers

But it is sometimes easier to recognize an evil than to find a remedy. Individual plate makers can hardly be expected to make the desirable change, business jealousy having long prevented a united agreement on several even more desirable changes in their methods. One especially is much to be desired; an agreement on a light which should be a standard for the speeding of their plates, and a national system of speed marking. For these and other improvements we shall have to wait for "a more convenient season," but we have faith in its coming. Some day we shall have a convention of plate makers and others connected therewith or interested therein, at which a few more steps shall be taken towards America's Golden Age of photography.



Art Palace at the Louisiana Purchase Exposition

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Muscular Anomalies and Higher Prisms one of the Features of our Course. Lists for the next class close May 24th. Class starts promptly on the 30th.

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We not only teach the student how and when to prescribe prisms but when to let them alone.

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We teach him how prisms relieve strain when properly prescribed and how they increase strain when improperly prescribed.

We show him how Heterophoria may sometimes cause a Spasm of Accommodation and how an error of refraction often causes an apparent Heterophoria.

We cover every possible complication of refractive error and muscular weakness that may arise, and the practical and rational treatment for those conditions.

In fact we make the student so familiar with unbalanced muscles that he will know the correct thing to do in any case no matter how complicated it may be.

This is just one of the many subjects that is thoroughly covered by our correspondence course of instruction.

Prominent opticians, jewelers, oculists and physicians in every State in the Union have told us that we have the most thorough course in Optics in the world.

When this is the verdict of the leading men in the profession all over the country you will surely take no chances in becoming one of our students.

Our prospectus, "How to Become a Good Optician," tells all about our College and gives full particulars of our course of study.

We will mail it to you free if you will send your name and address.

The South Bend College of Optics

(Incorporated),

No. 1 McDonald Building,

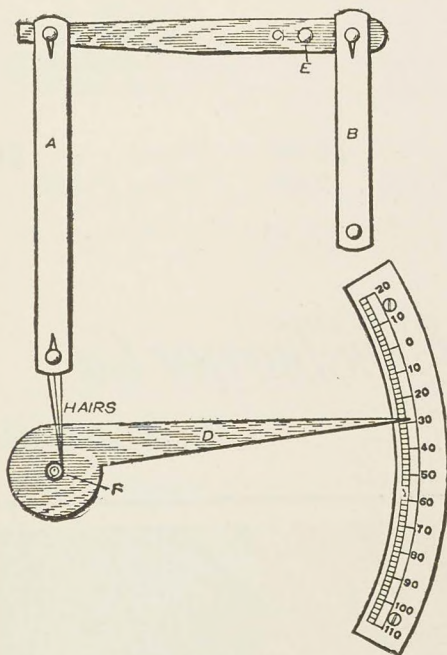
South Bend, Indiana, U.S.A.

How to Make a Curious Thermometer



THERMOMETER which depends upon pieces of brown paper and a few horsehairs, instead of mercury or spirits, for its action, is certainly a curiosity, and cannot fail to attract attention and interest your mechanical friends. The *Engineer* tells how to make one.

The strips *A* and *B*, are cut from thick brown wrapping paper, the coarser the better. Cut the strip *A* 1" wide and 30" long, and *B* 1" wide and 20" long. Cut button holes in the end of each strip as shown. The piece *C* is about 1' long and is made of thin wood. The hole *E* is 4" from



A Curious Thermometer

the wide end. The hand *D*, is made of very thin light wood and tapers to a point at one end, a circle being formed at the other end to act as a counter weight. The principal thing to be remembered in connection with the pointer is to have the pointed end just heavy enough to overbalance the round end so that it will descend by its own weight.

A small circle of wood, *F*, is fastened with glue on the large end of the pointer to which the horsehairs are attached.

Select a place on the wall where you wish to locate the thermometer. Then first put up the lever *C* by driving a smooth wire nail, or a screw, through the hole *E*. Button on strip *B*, and with the lever *C* in a horizontal position, put a tack or screw through the button hole *G*, in the lower end of *B*. Now button on strip *A* to the other end of the lever *C*. To the lower end of strip *A* attach three or four strands of the horsehair, bringing the strands down about 6 inches and fastening them to the underside of the small circle of wood *F* on the pointer *D*. Then fasten the pointer *D* to the wall with smooth nail or screw, which is to be put through the center of the small circle, *F*. The lever *C* and the pointer *D* must work perfectly free and easy on the screws.

When it is cold the paper and horsehairs will contract and the pointer will rise, and when it is warm the hair and paper will expand and the pointer will descend. A scale should be made, and degree marks laid off by marking the position

of the pointer corresponding to the indications of a mercury thermometer.

You will notice that this thermometer works diametrically opposite to the mercury thermometer, the pointer descending with rising temperature, and rising with falling temperature. A very slight expansion or contraction of the paper and hair will move the pointer a considerable distance.

Mother-of-Pearl Shell

By advices recently received by the mail steamer, the price of black-edge mother-of-pearl shell has lowered to \$250 United States gold per ton of 2,240 pounds, with a tendency downward. As there are 600 tons stored in London, Berlin, Paris, New York, San Francisco, and other markets, the supply appears to be double the average yearly demand. This is a partial explanation of the great fall in price, which, until recently, has been generally \$700 United States gold per ton. To account further for the reduced figure in the world markets of this article, one must look to two substitutes—a composition, with steel as the chief ingredient, and a small shell of the oyster variety are giving satisfaction to button manufacturers and are being admired by their patrons where the substitutes have been exploited. However, thick buttons of the best grade will continue, it is believed, to be manufactured from the mother-of-pearl shell; and for inlaid work, the latter is not likely to be driven out by the substitutes above mentioned. The mother of pearl fishers of French Oceania face a grave financial situation, with a prospective loss of \$270,000 during the year 1904. If diving machines are employed, as in the past year, the output probably will reach about 500 tons; if "naked" diving alone is resorted to, about 300 tons will be realized. To continue to place shell in the market will drive the price still lower. Not to produce, however, will also occasion loss by reason of labor contracts with traders and divers extending over a period of many months. Further, the merchants can not for some time yet to come receive the full benefit of the supply in the hands of their agents.

—U. S. Consul Doty, Tahiti, Society Islands.

The Future of Radium

So many marvelous possibilities have been claimed for radium that the public are eager to know the views of the discoverer on the subject. M. Curie, who is noted for conservatism of statement, says:

It is quite difficult to predict the future of radium, but I believe its field will be in the domain of medicine, rather than of warfare or commerce. A physician with a tenth of a grain of radium could receive an unlimited number of patients and probably effect cure after cure in cases of lupus and cancerous affections. The scope of radium is naturally affected by its enormous cost, as an ounce is worth a king's ransom. Recently, however, I received a communication from a firm in Buffalo, N. Y., claiming to have a new process of extracting radium from uranium, which may cheapen the article.

Radium might be a factor in warfare in the way of producing explosives in a magazine, causing the disappearance of a ship and the entire ship's company. But radium is dangerous against individuals rather than objects. A tenth of a grain left contiguous to a person is capable of producing complete paralysis. For this reason it would prove a dangerous medium in causing crime which would

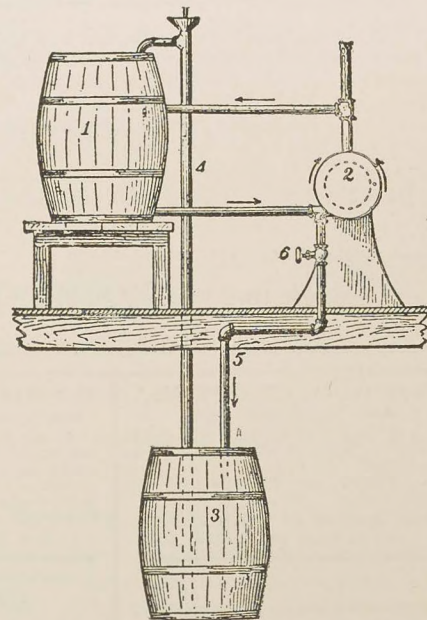
defy detection, if it ever becomes as easily obtainable as other chemicals. It is also dangerous to bring a tenth grain in contact with a highly-charged electric battery, because an immediate explosion is certain. At first we hoped that the blind would be benefited by it, for a particle of radium inclosed in a box, placed on the forehead, conveys a sensation of light to the eye. But we found it did not enable the blind person to distinguish objects. So far we have only used radium salts, and in minute quantities, yet the remarkable results produced show the possibilities of the pure product are inestimable.

A man entering a room where there is a pound of pure radium would perish, but there is no fear of this, as only radium salts are yet obtainable from the barium found in Bohemia called pitchblende, of which a ton often yields less than a gram of radium salts. Already the mineral of Joachimsthal, which gave my wife and myself our first material, is exhausted, and only the discovery of a veritable Klondike of radium will demonstrate the wonderful force of this chemical so little understood even by its most ardent investigators.

Before doing what Prof. Gustav Lebon has suggested, the blowing up of magazines, forts and arsenals in the enemy's country by using a small tube of radium, we shall have to find the requisite amount of pure radium. Its potentiality is wonderful, and I can even perceive a radium cannon projecting electric shocks at great distances with deadly effect.

A Gasoline Engine Kink

The problem of keeping a gasoline engine cool in cold weather and still avoiding frozen pipes or a bursted water jacket has been solved very satisfactorily by a writer in the *Blacksmith and Wheelwright*. The accompanying cut illustrates the arrangement used.



Two barrels and some piping are all that is required, one barrel being placed on a bench on a level with the cylinder of the engine, and the other one below the freezing line, as shown. The figures indicate: 1, barrel for water; 2, cylinder of engine; 3, barrel for water below; 4, pump to raise water to upper barrel; 5, pipe that lets water in barrel below when done work, by turning valve 6. The pump is operated from the engine and when barrel 1 is full can be thrown out of gear.

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If interested, write for terms and outline of
Course.

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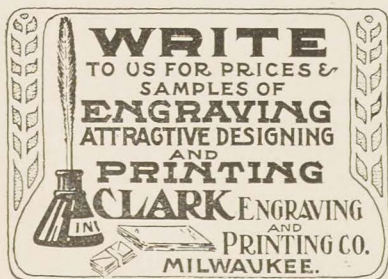
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Incorporated 1899.

Dover, Delaware.

If you want to go to College, where you are taught how spectacles are made, what they are made out of, and receive experimental work, as well as a full course in Ophthalmology, this is the College. No correspondence course. For large Catalogue send ten cents in stamps.

R. S. Stephens, M.D., LL.D., President.

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Our specialty is Prescription Work for the Trade. Work returned the same day if received before one o'clock. We are also making a Specialty of Stevens Gold Filled goods, either in quantities or on your prescription work. Give us a trial. 18 years' experience in the optical business.

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Room 405, 21 Bromfield St., Boston.
Telephone 4397-3 M.

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Our "D" guard has an offset in the shank so that the stud screws cannot come in contact with the nose. A decided improvement in many cases—also valuable in wide centers.

R Work for the Trade.

On all our guards the following prices are in effect from May 1st:

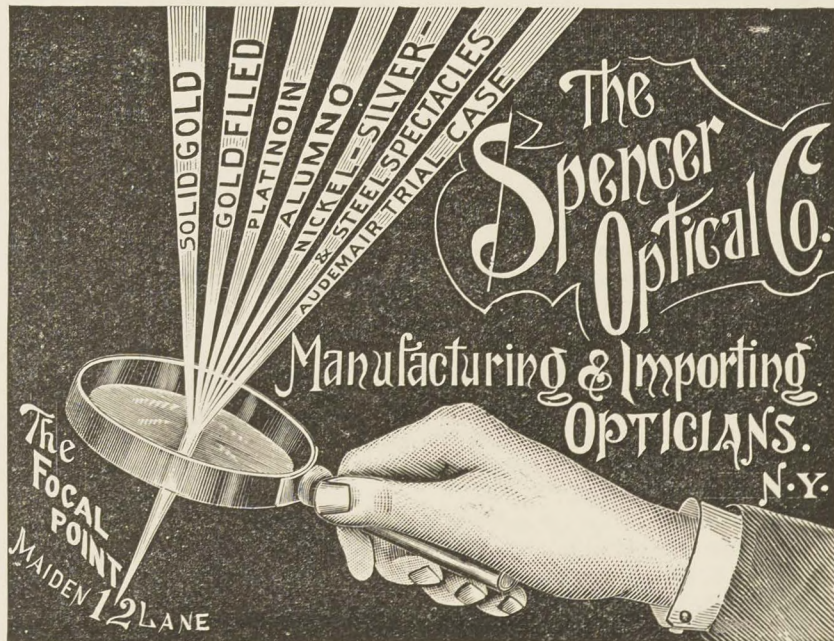
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| Gold, - | \$6.00 | Silver, - | \$1.25 |
| Gold Filled, - | 2.00 | White Metal, - | .75 |

Less 6% on 10th of month.

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using the best of material and guaranteeing my work to be

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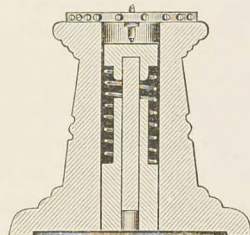
Prompt attention given to Mail and
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New Goods and Inventions

[The illustration and description of new goods and inventions as hereunder is a permanent feature of THE KEYSTONE, our twofold object being to keep the merchant jeweler thoroughly posted on the very latest and most salable goods, and the practical jeweler equally well posted on the newest inventions and improvements in tools and appliances used at the bench. For the benefit of the optician, we also illustrate and describe new optical goods and instruments in this department.]

The New Pivot Flattening and Polishing Tool

In the timing of watches it has been found very essential to have the ends of the balance staff pivots perfectly flat and nicely polished in order to have the friction the same when the watch is running in either a horizontal or a vertical position.



The illustrations herewith show a new tool for flattening the ends of balance staff pivots and reducing them to any length desired without removing the hair-spring. The makers of this tool, Hardinge Bros., of Chicago, claim that by its use the operation of reducing and flattening pivots can be more easily and rapidly accomplished than by placing the balance staff in the lathe. Not only does the use of this tool enable the workman to attain greater speed, but gives him the satisfaction of knowing, after he has reduced the pivot to the proper length, that the end is perfectly flat and polished.

Not only does the use of this tool enable the workman to attain greater speed, but gives him the satisfaction of knowing, after he has reduced the pivot to the proper length, that the end is perfectly flat and polished.

New Hat-Pin Stem

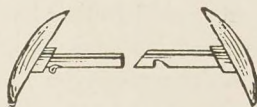
Anything that tends to prolong the usefulness of the hat pin will be welcomed by the great army of feminine shoppers. The hat-pin stem shown in the accompanying cut embodies features calculated to insure long service



and satisfactory wear. It is entirely solderless and of such construction that it will neither slip nor break. It is furnished to the trade by Henry Zimmern & Co., Inc., 60 John Street, New York, and from its everyday utility and improved features is likely to meet with a ready sale.

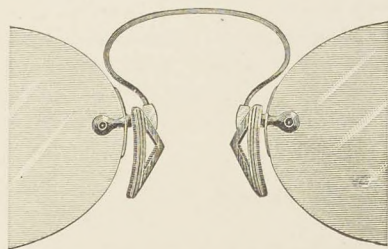
Improved Cuff Button

As a source of annoyance the cuff button has a time-honored reputation, so much so that every improvement is eagerly welcomed. The illustrations here shown represent a cuff button made on new and improved principle by E. P. Happich, 833 Arch Street, Philadelphia, Pa. This button obviates the trouble and difficulty usually incident to the fastening of cuffs, and in addition to facilitating the adjustment of the latter, it is strong, durable and neat in appearance. It use effectually prevents soiling or crushing of the cuff. This button has been patented in five countries and is made in ten and fourteen karat gold and in silver, and has the combination of serviceability and beauty that makes the ready seller.



An Improvement in Eyeglasses

An improvement in eyeglass guards that seems to make for security and comfort is known as the Mayer triangle, the makers being Geo. Mayer & Co., Philadelphia, Pa. The feature of the new guard is its triangular form, as shown in the illustration, which allows three bearing surfaces, thus affording greater security with less pressure. The guard is especially serviceable in the case of flat noses, which it grasps securely yet comfortably. The triangle is thin, almost to invisibility, and is neat and tasteful as well



as effective. These guards are noticeably becoming to the wearer. They are, besides, very carefully constructed, and will give long wear as well as comfort and satisfaction in use.

A New Hygienic Water Cooler

We show in the accompanying illustration a sectional view of a new hygienic water cooler, known as the "Alpine," made by Manning, Bowman & Co., Meriden, Conn. It is constructed with a crystal glass reservoir, porcelain-lined cold-water reservoir and separate ice chamber. It is so arranged that the ice cannot come in contact with the water. The outer shell is double walled and packed with a non-heat conducting material. When the water is drawn from the faucet (causing the water in cold-water reservoir to be lowered) it immediately refills with water from glass reservoir, and therefore is automatically kept full until all the water in the glass reservoir is used. These coolers can be had in nickel or silver plated. They seem to be thoroughly effective for the purpose intended, and in this age of germ hunting and extreme sanitation, they will, no doubt, command a ready sale.



Novel Ideas in World's Fair Souvenirs

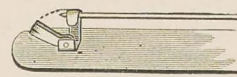
A unique profession is that of James J. Hannerty, of St. Louis, Mo., whose specialty it is to advise people as to how to have their photographs taken in order that they may show to greatest advantage. The person to be photographed goes first to Mr. Hannerty and, after being studied by the artist, gets from him a pose prescription, which he takes to the photographer, who takes the picture exactly as directed. One of his greatest triumphs in posing has been adopted as a World's Fair design and is entitled "A Deed of the Pen." In this picture Marguerite Silva, the actress, is represented holding a scroll or map in one hand and pointing with the other to the out-

lined Louisiana Purchase territory. The picture is remarkable for beauty and grace. This and other Hannerty ideas are to be reproduced on World's

Fair souvenirs, and the rights for such reproduction have been secured by G. A. Schlechter, manufacturing jeweler, Reading, Pa., who, as previously told in these columns, has secured contracts for vast quantities of World's Fair souvenirs of different designs. One of these is in the shape of a leg of mutton, or diagonal shield badge, showing all the States and Territories included in the Louisiana purchase. It is executed in blue, red, white and yellow enamel, the official colors of the exposition, and no doubt will prove very popular.

New Safety Catch

An invention of interest to bench-workers is the new safety catch shown in the accompanying illustrations. These catches are made in large and small sizes, the cuts shown herewith representing those of the larger grade. They are the product of



Open

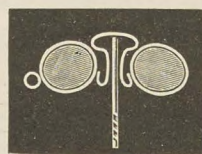


Closed

Blancard & Co., 96 Maiden Lane, New York, and consist of two parts including the spring, which latter will not wear out. The construction of these catches is strong and simple and those of the smaller grade are admirably adapted to badge work.

Eyeglass Stick Pin

The designer of stick pins enjoys a wealth of possibilities for varying the form of his creations, and as he has an infinite variety of tastes to satisfy he is always sure that the style of his product will prove popular with some section of the jewelry-buying public. The accompanying illustration represents a new and unique idea in stick pins. This pin is the product of the Novelty Mfg. Co., 2962 Wabash Avenue, Chicago. As will be seen by reference to the cut, its ornamental feature consists of a pair of eyeglasses. The lenses are blue and gold-rimmed. This pin is of the size shown in the cut, and is so unique as to force attention. The predilection for novelty now prevalent ensures attention and sales for such unique designs.



(Continued on page 835)

834
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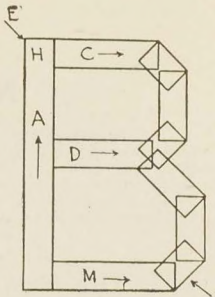
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את השמים ואת
ובהו וחשך על-פני



These eight illustrations are selected at
 random from the 200 and more original illustra-
 tions in the well-known treatise

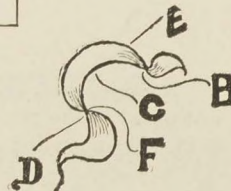
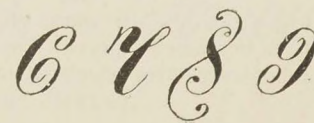
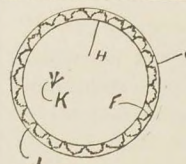
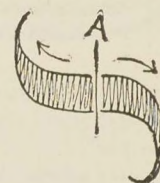
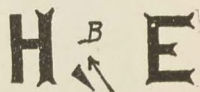
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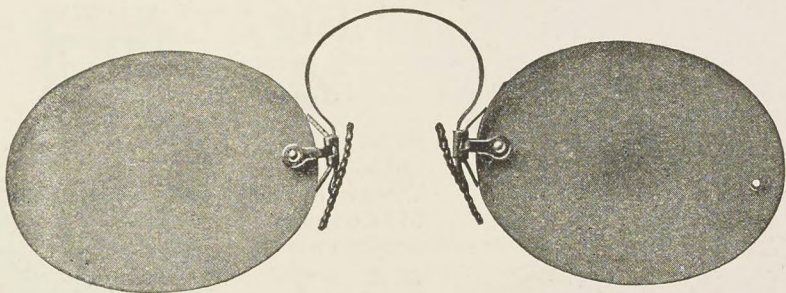
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New Goods and Inventions

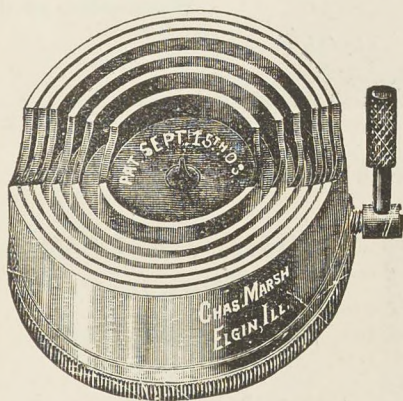
(Continued from page 833)

New Patent Rimless Eyeglass

Our illustration shows one of the new line of rimless eyeglasses just placed on the market by T. A. Willson & Co., Reading, Pa. The mounting, on which a patent has been obtained, is light and strong, the ingenious construction preventing the lenses from working loose. The guard is a neatly finished offset, cleanly and comfortable, and very becoming to the wearer. Indeed, these rimless eyeglasses seem to combine, to a unique degree, the qualities that make for perfection—serviceability, strength, comfort, security and neatness of appearance. The popularity of the new line would seem to be assured.



struction preventing the lenses from working loose. The guard is a neatly finished offset, cleanly and comfortable, and very becoming to the wearer. Indeed, these rimless eyeglasses seem to combine, to a unique degree, the qualities that make for perfection—serviceability, strength, comfort, security and neatness of appearance. The popularity of the new line would seem to be assured.



A New Movement Holder

Inventions to facilitate the work of the watchmaker continue to come to light. One of these, which benchworkers will find interesting, is the Marsh self-adjusting movement holder, shown in our illustration. This holder protects the center jewel from being broken or pushed out of the setting while cannon pinion or hands are being fitted on. The plunger adjusts itself to the center staff pivot. Turning the lever locks the plunger firm, making it impossible to break or

push the center jewel out of the setting. Every size of movement can be adjusted to this holder, which is being furnished to the trade by Swartchild & Company, Chicago. Those of the trade who have procured the holder are said to be highly pleased with its convenience and efficiency.

New Eyeglass Case

The evolution of the eyeglass has naturally been accompanied by corresponding improvement in the form and construction of the eyeglass case. In this illustration is shown one of the latest cases placed upon the market. It is known as the "Acme Shur-On," and is the product of E. Kirstein Sons Co., Rochester, N. Y. This case is of the same shape as the "Acme" case made by the same company. It has thin, round ends and an additional dome in the bottom. It is modeled on lines that make for convenience both in handling and carrying, and at the same time insure the eyeglass against breakage or bending. This company has given to the trade and public many valuable improvements in spectacle and eyeglass cases.



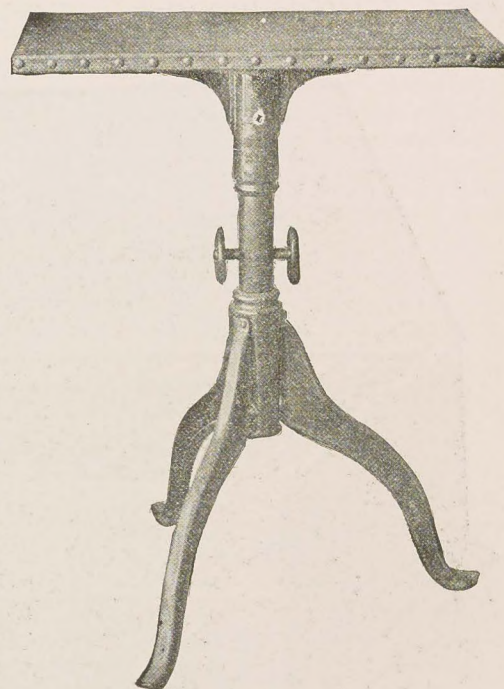
Shank for Pearl Buttons

L. Votroubek, of Columbus Junction, Iowa, is the inventor of a new shank or back for pearl buttons. Its constructive features consist of a plug which is a little larger in diameter than the inside of the sleeve. This flares the sleeve when the latter is pressed over it, or, in other words, the plug is first inserted in the undercut hole of the button proper and the shank of the

back piece is brought down over it. This button when complete cannot be broken or pulled asunder except by the exertion of extraordinary force. The shank can be made with either an eye or a pin by which it is attached to the garment.

Optician's Table for Refraction Work

A recent addition to the office equipment of the optician is a specially-designed table for refraction work. It is known as the "Midland" table, and is made by the Merry Optical Co., of Kansas City, Mo. It is very convenient in shape and can be adjusted to any desired height. The metal body is finished in black enamel and the top is covered with dark green morocco line leather. Another novelty just introduced by the company is a velvet-lined, tortoiseshell eyeglass case, which is said to be admirably adapted for the purpose intended. The Merry Company has quite a number of inventions to its credit that greatly facilitate the work of the optician.



Elimination of Platinum from Incandescent Lamps

Numerous attempts have been made to substitute a less costly metal for platinum. Platinum possesses special properties which make it very suitable for employment in the manufacture of incandescent lamps. Its coefficient of expansion is approximately the same as that of glass, and its chemical properties are equally important from the point of view of sound jointing. The discovery of the properties of nickel steel by M. Quillaume is an interesting development, especially when it is considered that the lamp industry is menaced by the approaching exhaustion of platinum mines. It is possible to make great variations in the physical properties of nickel steel, and consequently to obtain an alloy having exactly the co-efficient of expansion of glass, so that it may be substituted for platinum to convey the current to the filament of the lamp. Another solution has been proposed which appears to give excellent results. The inventor does not accept the view that platinum is not replaceable, or rather that the joints made in employing other means are never sound, and he utilizes a special cement for filling the fissures which are developed between the metallic conductor and the glass of the bulb during or subsequently to jointing. This cement, of which the composition is kept secret, gives very good results, and ensures perfectly sound joints. The Compagnie Generale des Lampes a Incandescence, which employs this process, has been able to effect the entire elimination of platinum from the lamps manufactured. The cement has the consistency of soft wax, it is not prejudicially affected by exposure to air, and it does not melt under the influence of heat. It is placed in a chamber in the head of the lamp, through which pass the conductors conveying current to the filament. This solution is a real advance in lamp manufacture, an industry which was at the mercy of impurity contained in platinum, and, above all, found itself dependent upon a metal becoming more and more rare, and of which, consequently, the price augments day by day.

Necessity, it is said, is the mother of invention, and the elimination of any one article or element generally results in the substitution of another, often a better one. The inventor and scientific investigator are tireless workers and seem able to cope with any situation that arises. When platinum becomes too scarce and high-priced to be available, it is safe to predict that we shall have an effective substitute.

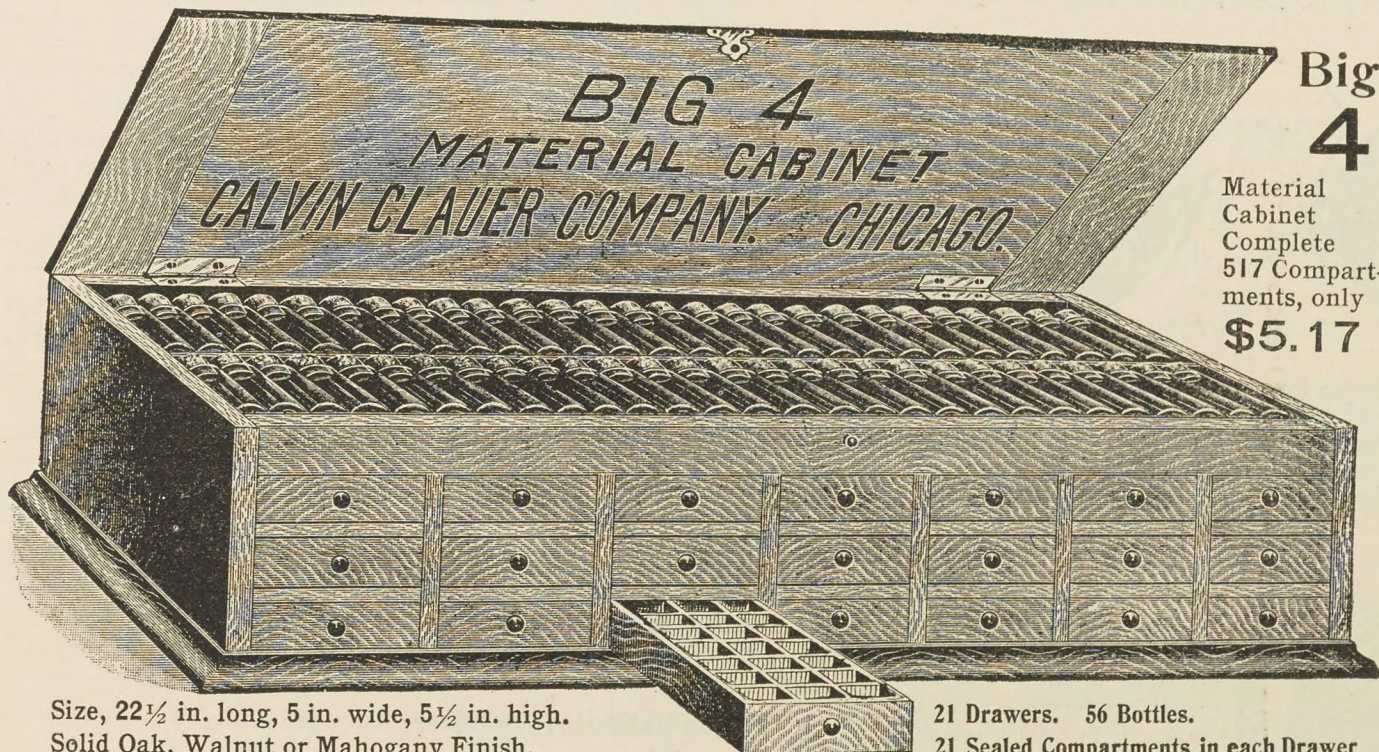
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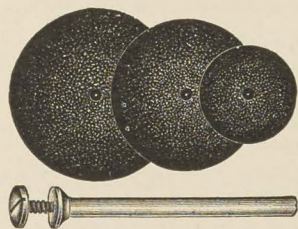
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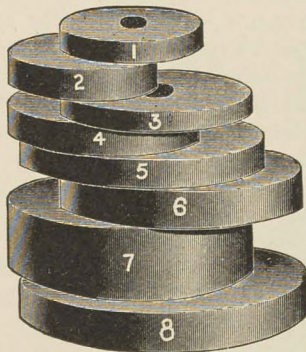
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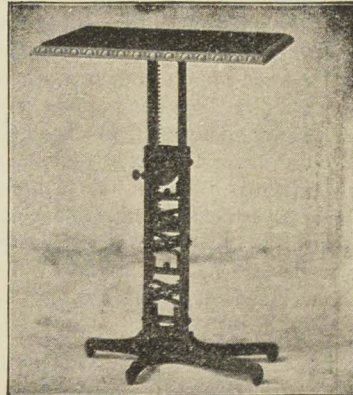


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| .25 | Gold Solder for 8 K. and 6 K. work | | per dwt., .19 " |
| 3.00 | 14 K. Gold Filled Pendant Bows, assorted sizes, Antique or American | | per dozen, 1.12 " |
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| 1.75 | 1 gross assorted Case Screws, all sizes, for Elgin and Waltham | | " gross, 1.28 " |
| | Or assorted, for all styles 18 size movements | | " " 1.28 " |
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| 1.00 | Pendant Screws, all sizes | | " " .42 " |
| 5.00 | Best 25-year Case Pendant Bows, assorted on a card, Antique or American, warranted 1/10 14 K. Gold and stamped | | " dozen, 3.90 " |
| 1.50 | 1 gross White Glazed 1 to 6 Nest Boxes | | " gross, .86 " |
| .20 | Black Spectacle Cases, Straight or Riding Bow | | " dozen, .14 " |
| .60 | Line Gravers, any style | | " each, .23 " |
| .50 | 1000 Watch Tags, medium size | | " per M., .33 " |
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Items of Interest

Jacob Glick has moved back to Stockton, Cal., after being in business at Sacramento, Cal., for ten months.

E. E. Frost, of Spartansburg, Pa., has moved from 9 Main Street to a larger and more suitable location at 21 Main Street.

R. J. Kewin, of R. J. Kewin & Co., Griswold, Iowa, has purchased E. E. Wilcox's jewelry business at that place. The firm of R. J. Kewin & Co. has been succeeded by Frank Van Brocklin.

J. F. Carr, Kenton, Ohio, is mourning the loss of his wife, whose death occurred April 21. He has the sympathy of a large circle of friends who knew and admired the deceased and can appreciate his loss.

N. A. McDuffie, after spending three years with H. C. Leach, of Beaumont, Texas, has opened up for himself at Lawton, Oklahoma, where he now conducts a jewelry business under the name of McDuffie Bros.

Owing to the recent death of W. C. Dickinson, of Urbana, Ohio, Charles G. Sederberg, of Milford, Ohio, will close out his jewelry business in the last-named town and take charge of the affairs of deceased at Urbana.

Dorst & Co., jewelry manufacturers, Cincinnati, Ohio, have leased the third floor of the new Gumbel Building, Kansas City, Mo., and will there establish a branch concern, with a working force of twenty hands at the outset.

D. A. A. Buck, head of the Medina Mfg. Co., Medina, N. Y., and well-known as the inventor of the Waterbury watch, died at Medina on April 7th, at the age of sixty-seven. Death ensued after a protracted illness from heart disease.

P. F. Sharick, Ashland, Ohio, has moved back to his old location in the Opera House block. He has a fine, large store room, with separate room for optical purposes, and will add three floor cases for novelties, cut glass and hand-painted china.

Chas. H. Howe, formerly manager of H. E. Fox's jewelry store at Douglas, Ariz., and J. G. Erickson, formerly in the jewelry business at Marfa, Texas, have bought the Douglas store and will conduct it under the name of Erickson & Howe.

Upon the invitation of the American Waltham Watch Company about seventy-five railroad watch inspectors assembled at Montreal, Canada, recently and listened to a lecture by Mr. Duncan, of that company. He spoke on "The Construction and Adjustment of Fine Watches," and his address was much enjoyed and appreciated by those present.

The following students have recently entered the St. Louis Watchmaking School, St. Louis, Mo.: Tilden A. Craddick, Shelbyville, Ill.; Otto Wilson, Steelville, Mo.; Paul Jenner, West Salem, Ill.; O. O. Rysstadt, Grand Forks, N. Dak.; J. W. Parks, Brookhaven, Texas; W. H. Ashcraft, Oberlin, Kans.; Fred. L. Roseborough, Beatrice, Nebr.; Thos. C. Knight, San Marcos, Texas; J. H. Sherwood, Ewing, Ky.; J. Schubert, Nickerson, Kans.; Wm. Curnutt, Nickerson, Kans.; W. Gauert, St. Louis, Mo.; Robt. Weightman, St. Louis, Mo.; N. H. Hamel, Boston, Mass.; R. J. Adams, Valparaiso, Ind.; W. Rosenauer, Antonio, Mo.; A. E. Simpson, Los Angeles, Cal.; John Stolle, Evansville, Ill.; J. Bunton, Louisville, Ky.

The St. Louis Watchmaking School, St. Louis, Mo., has issued an illustrated booklet containing a brief history of that institution and setting forth its scope and curriculum. The pictorial portions are illustrative of sections of the school, devices used therein and work done by a number of its students. This booklet is handsomely compiled, and will no doubt prove interesting to all engaged in horological and optical work.

A dual misfortune befell Jeweler H. W. Counter, of Millbank, S. Dak., recently. The first came when his store was totally destroyed by fire, and the second and more pathetic when his wife died, after an illness of six years. Jeweler Counter is bearing his bereavement with fortitude, and in due course will make arrangements for rebuilding. THE KEYSTONE joins with his friends in extending to himself and his family sincere sympathy.

George W. Heywood, of Franklin, Mass., enjoys the distinction of having occupied his present location for sixty years. Last month rounded out the three-score period of business-doing on the one spot, and Jeweler Heywood's distinction is made unique by the fact that he is of the third generation. "How many more are there who have been so long in one place?" he asks. It would be difficult to say, but doubtless there are not many.

Richard Miller, the pioneer jeweler, of McPherson, Kans., will spend the summer abroad. He will sail from New York on the Red Star steamer *Kroonland*, May 14th, accompanied by his wife and daughter. They will spend a month or six weeks visiting Mr. Miller's old home in Fulda, Germany, and the remainder of the summer touring Europe, visiting Rome, Paris, London and many other points of interest, returning home about September 1st.

H. F. Barrows & Co., of North Attleboro, Mass., one of the oldest chain manufacturing concerns in the country, has been incorporated under the laws of Rhode Island. The firm is now known as H. F. Barrows Company, and in its reorganized form Louis D. Barrows possesses an interest in it. The incorporation of the firm will not cause any change in its policy. Its officers are: President, Ira Barrows, of New York; secretary, Louis D. Barrows; treasurer, Henry F. Barrows, Jr.

Eastwood & Park, manufacturing jewelers, of Newark, N. J., have been succeeded by Eastwood & Park Co. Gustavus Sickles, a brother of the members of the firm of M. Sickles & Sons, Philadelphia, has purchased an interest in the Eastwood & Park Co., and is secretary of the new firm. Mr. Sickles, who was previously in the law business in Philadelphia, has followed the family bent in associating himself with the jewelry trade interests, all the brothers now being engaged in this line.

The jewelry store of John Hellerich, 39 Michigan Avenue, Detroit, Mich., was recently robbed by burglars, who broke the window and secured several hundred dollars' worth of watches. The thieves watched the patrolman on the beat, and when he was out of the way they smashed the glass. One of them stepped into the window and handed out as many of the watches as the two could conveniently carry away. The Detroit department notified the Toledo, Ohio, police to be on the lookout for men offering such property for sale. Two men, giving their names as Ed. Fisher and George Miller, were subsequently arrested in that city. Watches and a pawn ticket were found

on one, and numerous pieces of jewelry on the other. They were held, pending the arrival of officers from Detroit.

The J. L. Duke Jewelry Co.'s store, Fayetteville, Ark., was burglarized on the night of April 17th, when a number of watches and chains were purloined. One man, aged about twenty years, giving his name as Jas. McAnally, alias Wm. West, alias "Michigan Kid," was captured at Aurora, Mo., on the 19th, and had in his possession some of these goods, and when brought back admitted his guilt and claims his accomplice as one W. H. Morgan. The man in custody stated that he and Morgan were going to St. Louis, Mo., where there were plenty of fences through whom the goods could easily be disposed of. A reward is offered for the detention of Morgan. He is about thirty-five years old, about five feet nine inches high, has black hair streaked with gray, black moustache, and his left eye is crossed.

A Prosperous Trade Society

The Swedish Watchmakers' Society, of Chicago, Ill., announces the beginning of its thirteenth year of usefulness with this month. This society is in a flourishing condition, as will be shown by the following reports given in by its officers at the last meeting, on the evening of April 6th. The meeting was spirited from start to finish, three-fourths of the membership being in attendance. The auditing committee report that the society has on hand in cash \$947.16; a library, consisting of horological books, worth \$250; and several high-grade watch movements. The society's sick fund reported a cash balance of \$866.22. Although there is paid a sick benefit of \$7 per week and at death one dollar for each member in good standing, there has been an increase each year in the cash balance of the society's sick fund. The auditing committee appointed to examine the books of the society and the condition of the sick fund, complimented the officers for their good and faithful work. The newly-elected officers are: Carl Johanson, president; John Ohlson, vice-president; Einar Bagge, treasurer; John Lundstrom, recording secretary; A. Rodelius, vice recording secretary; L. Liljegren, financial secretary, and A. Westberg, marshal. John R. Lilja, John Ohlson and A. Carlstrom were elected trustees, and A. Rodelius librarian. Oscar F. Engwall was unanimously elected an honorary member as a recognition of his great services and interest taken in the welfare of the society.

A New Kind of Bronze.

The demands of automobile manufacturers for a metal able to sustain extraordinary pulling and twisting strains have led to the invention in France of a new alloy, which is called "formetal." It contains, in addition to the usual constituents of bronze and brass, a mixture of other metallic elements, which contribute great power of mechanical resistance. It is also said to be unalterable by the effects of exposure to the air, and it resists the attack of weak acids. It can be drawn in bars or rolled and forged. Nuts and screws made of it are unoxidizable.

"I have been a subscriber to The Keystone ever since it was first published and I have them bound each year in book form. I cannot afford to be without it."—A. E. Garnsey, Jeweler, Sanford, Maine.

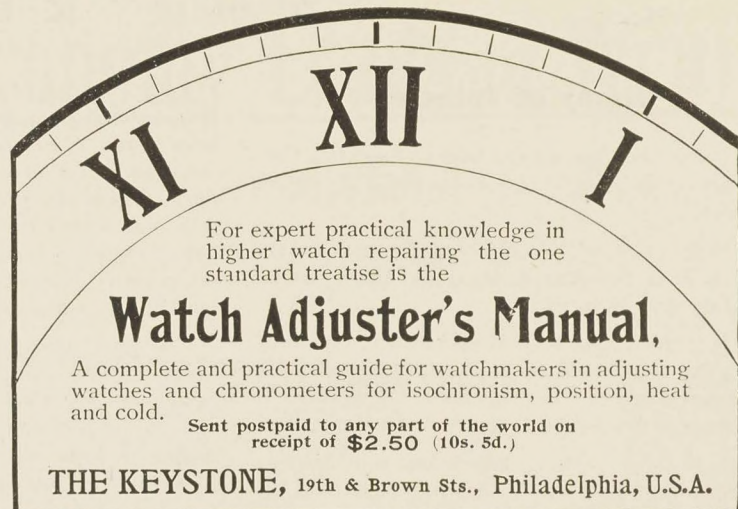
STUDY OPTICS

There are great advantages to every jeweler in becoming a skilled and graduated **OPTICIAN**. It is a profession the importance of which is being recognized more every day by people in general; and as a result few professions are more remunerative with as little an outlay of time and study.

The American Optical College gives you a regular \$25 college course by correspondence for only \$8.00.

(You can pay \$2 down and the balance \$1 a week.) You do not need to drop your daily work. This school is one of the oldest and best institutions of its kind in the world; consequently its diploma carries prestige. Every graduate receives the degree "**DOCTOR OF OPTICS**." Prospectus and particulars on application. Address,

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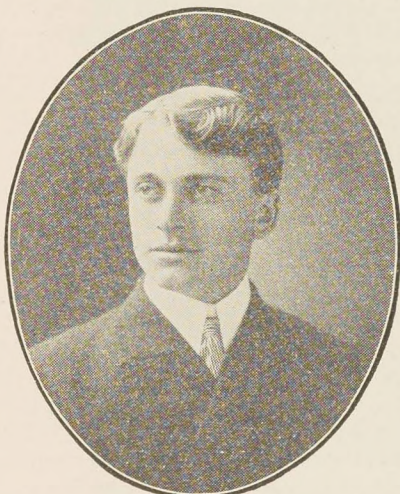


For expert practical knowledge in higher watch repairing the one standard treatise is the

Watch Adjuster's Manual,

A complete and practical guide for watchmakers in adjusting watches and chronometers for isochronism, position, heat and cold. Sent postpaid to any part of the world on receipt of \$2.50 (10s. 5d.)

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WRIGHT.

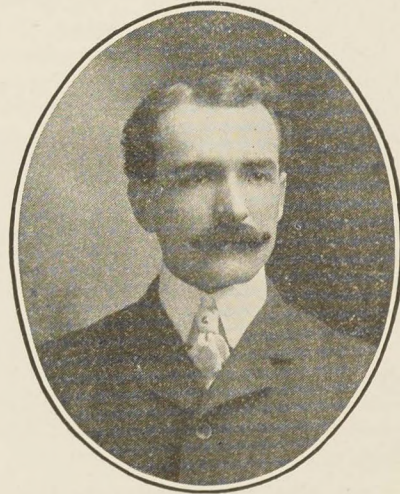
Mr. Jeweler! Could you use more money? If so, write us for date to conduct your auction. Quickly and skillfully we dispose of stocks, or any part of them, on a *division of profits*. This is the best plan for the Jeweler; he can't lose.

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WILLIAMS.

H. J. HOOPER, The Auctioneer.

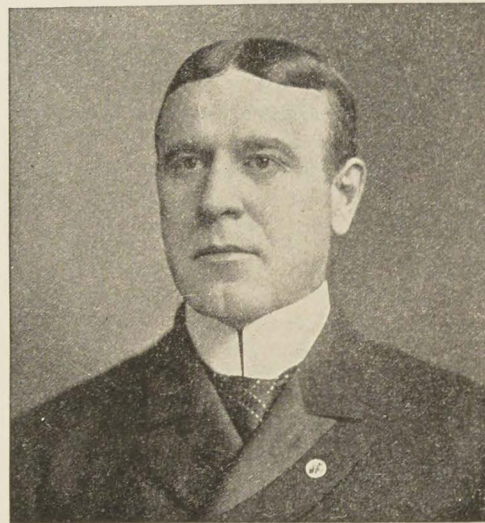
If you are thinking of holding an auction, and if you are an up-to-date Jeweler, you ought to be, if not I can make you one by turning your old stock into cash, and you know what cash will do when you are buying goods.

You can generally tell a man by the way he advertises how he sells his goods. If he is conservative in his statements advertising, you will generally find him a pretty square man to deal with, and the public will have confidence in him. I think you will find the same in the Auction business.

You may write me and I will send you the names of the firms I have made sales for the last six months. You may write them a personal letter. I think they will give you a favorable reply.

H. J. HOOPER, 22 John Street, NEW YORK CITY.

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Jewels of New York Women

The Fad for Collections of Precious Stones—One Woman Famous for Her Turquoises, Another for Her Emeralds—Pearls Above All Are Fashionable—Earrings Coming Back—The Modish Bracelet

SUPPOSE a New York woman has \$100,000 to spend for jewels, what will she choose?" a leading jeweler was asked.

"If she is absolutely jewelless," he answered, "she will probably put most of that sum into diamonds; but if she already has a few jewels, most likely her money will go for pearls.

"If any one jewel can be said to be more fashionable than another over here, it is the pearl, and it is quite true that some of the finest that were ever in the market are owned by American women.

"You will oftener find inferior grades of pearls worn by the English woman of high degree than by the American, especially the New Yorker. It is one of the good uses to which she puts her wealth.

"If I can have pearls at all, I want the best," is invariably her demand.

"I think one reason why pearls are having such a vogue, is that they can be worn with street dress as well as evening clothes, and on all occasions, A single string of pearls just long enough to circle the neck, which costs anywhere from \$30,000 to five times that sum and more, is not out of place with a walking suit.

"A long chain of pearls, a dog collar, as it is called, or an elaborate pearl ornament might be out of place, but not the single strand necklace, which the New York woman has evidently decided can be and ought to be in evidence on every occasion. It generally is.

"As most people who keep their eyes open to the fashions have probably seen, she wears a row of pearls clasping her collar even to go shopping. What some people don't know, however, is that every year the New York woman grows more particular about having her pearls match in size and color.

"Pearls, flawless pearls, were never so costly as they are now, for the reason that they were never so scarce and never more in demand. In a long experience, I have never known such a demand for pearl pendants—that is, a single large pear-shaped pearl, black, gray or white, sometimes topped with a diamond, but oftener without, which is worn suspended from a thread-like gold chain.

"Then many of the smartest women have taken to wearing single large pearls in

their ears. One of our customers, a woman who can afford to be odd, came in one day with a black pearl in one ear and a white one in the other. More often the pearls match; and they always sit close to the ear.

"Yes; in all probability the drop earring will come again to its own for the reason that the Paris jewelers are trying hard to make it the fashion; and there are plenty of New York women who are bound to fall in with any Parisian fashion, whether it is in dogs, dresses or jewels."

"In that case, why is not the emerald the most fashionable stone over here?" the jeweler was asked. "A noted London jeweler is quoted as saying that the emerald leads among fashionables on the other side."

"Well, perhaps that jeweler was misquoted. What he probably said was that emeralds are more in demand than they ever were before—a statement which is certainly true of this part of the country anyway.

"Ever since the millionaires began to multiply in New York there has been a disposition to bid for the rarest in any manufacture or product, jewels not excepted. The emerald is one of the costliest of precious stones. A first-quality emerald exceeds in price a first-quality diamond and is overtopped in price only by a ruby of the same class.

"It has come to be pretty well understood among jewelers the world over that rich Americans can be counted upon to be sure and generous customers for rare jewels of any kind, I don't care what. With the American, prices are never prohibitive. For that reason Americans are buying—have been buying—emeralds right along.

"I suppose it would be hard to find a New York woman of means whose jewel case does not include some first-class emeralds. On the other hand, there are comparatively few who have or aim to have a collection. And yet there is a steady demand for emeralds right along, especially for finger rings.

"By the way, it is getting to be more the fashion for women of wealth to make a collection of certain stones, or, in other words, to appear in full dress wearing a tiara, necklace, stomacher and other ornaments, all of the same jewels. For instance, there is one young matron who figures much in fashionable annals all over the world—a New Yorker she is—who is famed for her collection of turquoise ornaments.

Combination Settings

"There is another woman equally well known who is famed for her emeralds, which are plentiful enough almost to cover her bodice, to say nothing of her neck and arms, when she gets them all

on. I am told that every woman who ever sees this collection promptly breaks the tenth commandment. She is the only woman in New York, so far as I know, who has such a quantity of emeralds.

"Oh, yes, both turquoises and emeralds are always set with diamonds. They need the contrast to set them up.

"There are several New Yorkers with collections of pearls worth nearly half a million of dollars—pearls which are practically flawless, every one. Of course they are always worn alone, with the result that 'Mrs. So-and-So's famous pearls' are spoken of time and time again.

"A most beautiful collection of sapphires, all matching perfectly, is owned by another of our customers.

"Rich American women, in fact, are making more of a specialty of such collections than the women of other countries, I find. I hardly think there is any chance of the fashion becoming common. I wish it might.

"So far I have not heard of any large private collections of rubies. Rubies are scarce, very scarce—that is, rubies of the first quality, which is the only quality that applies to the New Yorker able to buy fancy stones. There are few high-class rubies in the New York market that do not find ready customers, and I think the New York woman is almost as partial to rubies as she is to emeralds.

Odd Jewels in Demand

"There is a growing disposition, in fact, on the part of New Yorkers to buy fancy stones of any kind. Cats-eyes, provided they are of conspicuously rare design, are snapped up as quickly as a diamond. There is absolutely no jewel which is unfashionable.

"As to settings? There are practically no settings; or rather, there are none in sight. There must be nothing to detract from the beauty of the jewels.

"Platinum only is used as a background for diamonds, or any white stone, and as little of that as possible. Even with colored stones the setting usually amounts to little or nothing. There are exceptions, of course, in the case of the flat, flexible bracelets, which are so much worn just now.

"For instance, this row of turquoises is connected with an open work of gold filigree, and that bracelet of amethysts shows connecting links of gold.

"No, we are not selling stiff clasp bracelets at all. There is no demand for them. The flexible clasp bracelet made of a row of precious stones, which fits the arm, is the newest style, and an alternative is a very slender gold chain bracelet from which hangs a jeweled pendant."

—New York Sun.

The Auctioneer Who Never Has Had a Failure.

My methods are new, honest and on business principles, which always bring the desired results. I send no assistant to fill my dates. **But times and conditions have changed in the last few years**, and what you want is an up-to-date, wide-awake auctioneer who can sell the goods and get the prices.

A few letters of this year from prominent Jewelers where I have conducted sales:

Mr. E. R. Tyler has just closed a most successful sale for us, selling the goods that we wanted to sell, and at good prices. We recommend him to business men who are thinking of having a sale as the one to have, for he works for the interest of the jeweler at all times. Yours,
Dunkirk, N. Y., January 26, 1904. JOHN A. STAFF & SON.

JEWELERS:—If you need an auctioneer to sell your stock and want a profit, I would recommend that you get E. R. Tyler. He has just closed out my entire stock at a profit. This was my third sale, and the only profit sale out of them all. Yours,
Bellevue, Ohio, February 8, 1904. JAS. E. MORROW.

E. R. TYLER, 156 Wabash Ave., Chicago.
DEAR SIR:—After figuring up the results of our sale we find that we came out much better than we hoped for. We have not only cleaned out all of our dead stock at a good price, but have become acquainted and done business with hundreds of people who were never in our store before. As an advertiser it has been worth hundreds of dollars to us. We will be pleased to have you use us as reference, for we feel that we can conscientiously recommend you to any one who appreciates honorable, business-like methods. Yours sincerely,
Lead, S. D., February 22, 1904. LA MONTAGUE & INGALLS.

I can say with pleasure I consider E. R. Tyler one of the highest class and best auctioneers in the business. He commands the respect and has the confidence of the public, and as a price-getter has no equal. This was our second sale. Both conducted by him and both a good profit sale. Yours,
Bellefontaine, Ohio, March 20, 1904. G. S. BROWN & CO.

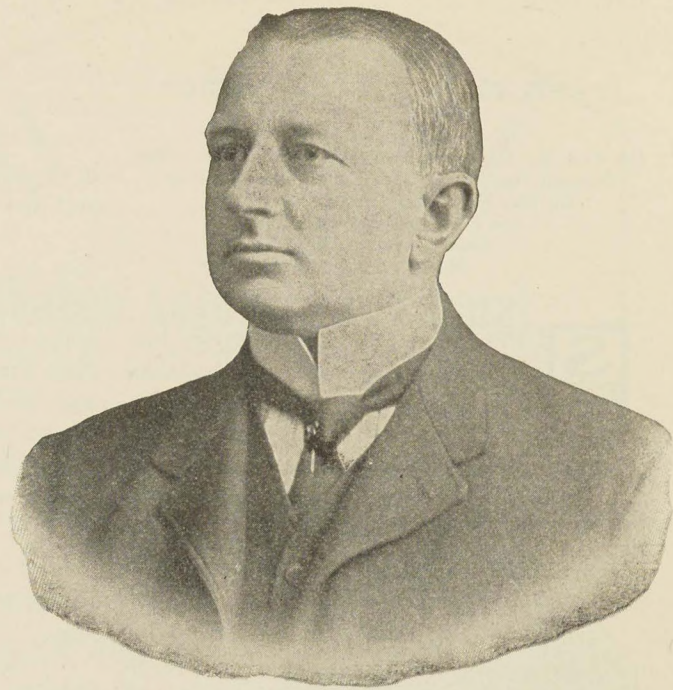
I have just closed an auction sale with E. R. Tyler, as auctioneer. In the last fifteen years I have had a number of sales and by the best auctioneers in the country. But I must say that Mr. Tyler excels them all. He sold out my entire stock quick, and at a good profit. He is the man to get when there is business to be done. J. W. SAMUELS.
Maquoketa, Iowa, April 1, 1904.

TO WHOM IT MAY CONCERN:
Mr. E. R. Tyler has just closed a two-weeks' sale at a profit for us, after one of the supposed leading auctioneers had disappointed us by sending a substitute who was unable to sell an article. O. F. ERICSON & CO.
Kewanee, Ill., April 15, 1904.

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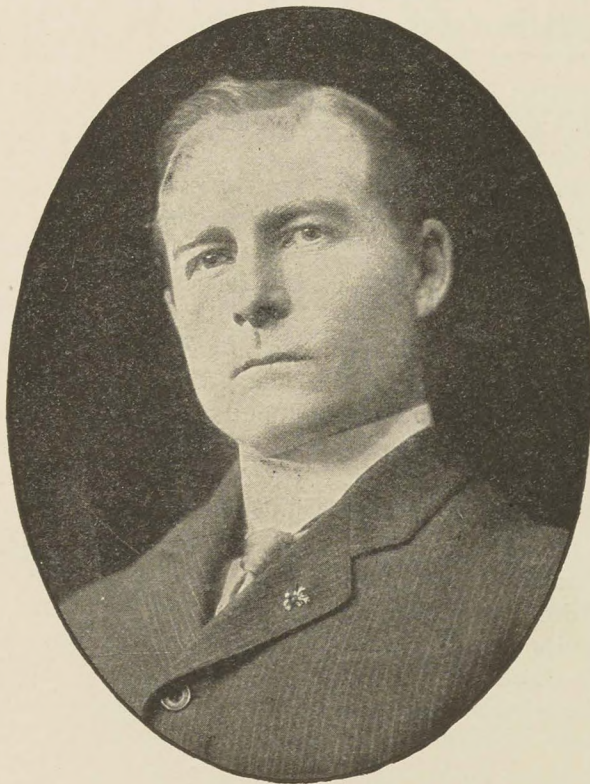


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weather gets
too hot. I
would be glad
to hear from
you.



D. O. HERNDON,

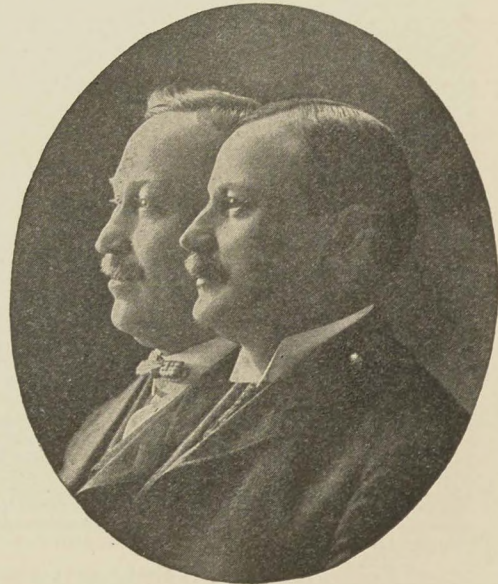
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On the Subject of Auctions

North, South, East, West

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If you wish to verify the above (and you ought to do it if you are interested), write the following firms with whom I have done business lately:

J. H. BARNARD, London, Canada. W. T. GARD, St. John, New Brunswick.
L. I. STEPHENS, Jacksonville, Fla. W. S. TROWBRIDGE, Colorado Springs, Colo.

I have some printed matter which will prove *interesting and valuable* to any jeweler and *particularly valuable* to anyone interested in a sale. It will be sent for the asking. A post card to my home offices will bring it, and also the names of jewelers with whom I have done business in your neighborhood. Have a few dates open yet, and am now booking business for the fall. Have *already booked* dates for one of the *largest* stocks in State of *New York*, and the largest in State of *Washington*. Don't leave it to the last—you will find me busy.

Write the man who has never had a failure in ten years' experience.

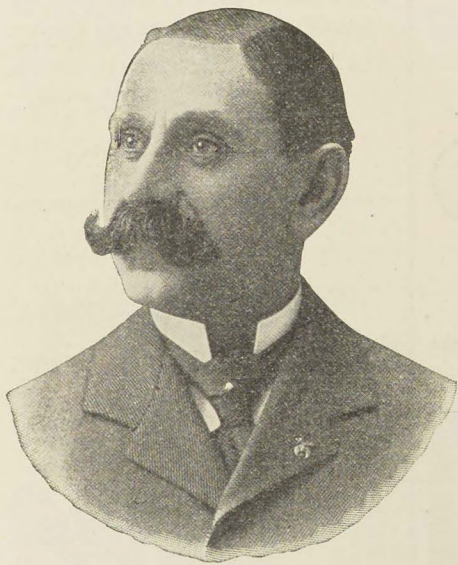


P. E. POPE,

Canadian Office—64 Arthur St., Toronto, Ont.

Fond du Lac, Wisconsin.

P. S.—If you have any **cheap goods don't send** for me. I am not in that business.



JOHN F. TURNER, JEWELERS' AUCTIONEER,

103 State Street, CHICAGO, ILL.

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G. Heitkemper, Portland, Ore.
Wm. J. Kelly, Oshkosh, Wis.
The Jaccard Jewelry Co., Kansas City, Mo.
C. W. Ernsting, San Diego, Cal.
Morris G. Cohen, Pittsburg, Pa.
Geo. C. Bowen, Niagara Falls, N. Y.
T. Porte & Company, Grand Forks, N. Dak.

Frank Curtis Co., Decatur, Ill.
Emil Steinman, Sacramento, Cal.
J. K. Basye, Seattle, Wash.
Buysse the Jeweler, South Bend, Ind.
Topliff & Co., St. Paul, Minn.
C. H. Knights & Co., Chicago, Ill.
Estate of H. C. Graff, Fort Wayne, Ind.
William Day, Lexington, Ky.
Chas. H. Locher, Lancaster, Pa.

Herman Steinman, San Francisco, Cal.
Speck Jewelry Co., Milwaukee, Wis.
Breen & Morris, Attys., Ft. Wayne, Ind.
S. N. Jenkins & Co., Richmond, Ind.
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Miniatures burnt in on vitrified enamel. Absolutely indestructible. Will last forever.

MINIATURES ON WATCH DIALS AND CAPS, plain and colored. Send five two-cent stamps for beautiful sample dial and price-list.

CARMAN ART COMPANY,
115 Dearborn Street, CHICAGO, ILL.

New and Second-Hand
MOVEMENTS

BARGAINS!
Bought from stocks. New as from factories. Send for catalogue.
A large assortment of discontinued movements.
Watch Material and Jewelry Supplies.
Best American-made Jewels, 50 cts. a dozen.
Watches Repaired for the Trade.
All American Staffs fitted at 50 cents.

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Established 1839.



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Jewelry Sample Trunks and Cases.

Extra Deep Trunks and Cases Always in Stock.

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NEW YORK.

EXPERT
Watch Case Repairing
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Watch Case Manufacturing.



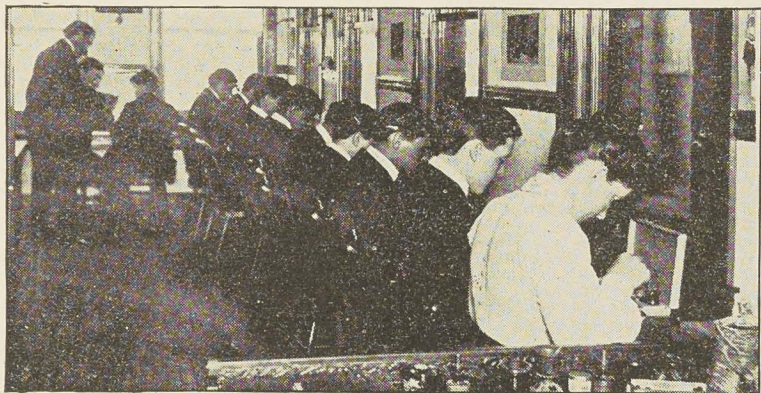
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Old English and Swiss Cases changed to fit American Stem-Wind Movements

Special Cases made to order in Gold and Silver for English, Swiss and American Movements.
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F. H. JACOBSON CO.
88 State Street, Chicago.
Send for Our New Price-List.

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OUR NEW SCHOOL ROOM. Full Class of Twelve Pupils.

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PINS, BUTTONS, HAT PINS, FOBS, CHARMS, SOUVENIR SPOONS, TRAYS, ETC.

In solid gold, silver, plate, gilt, etc. Enameled in World's Fair colors.

Patent Applied For.

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ROLLER JEWEL HOLDER.

I have put on the market a new Roller Jewel Holding Device to hold a roller while trying it in the fork for proper size before putting jewel in setter to be set in table. Saves time, patience and money. Made of steel, beautifully gold-plated. Self-closing. A slight pressure on the sides opens the holder to take the jewel, holding it firmly with even tension between grooved points, preventing jewel from snapping away. The same pressure on sides of tool releases the jewel. One of the best tools on the market to-day for the watch repairer.

Price, postpaid, 50 Cents. Stamps taken.

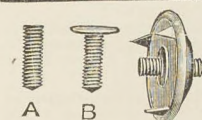
Testimonials given if desired. Address A. W. FLYE, Manufacturer, 4 Center St., Gloucester, Mass.

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Does a record of holding customers right through since 1892 show that Craft knows his business? This is his record.

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Very often a man is tempted to use profanity just because his cuff button is troublesome to attach.

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At a School where practical engraving is taught in all its branches.

At the School whose graduates are always in demand.

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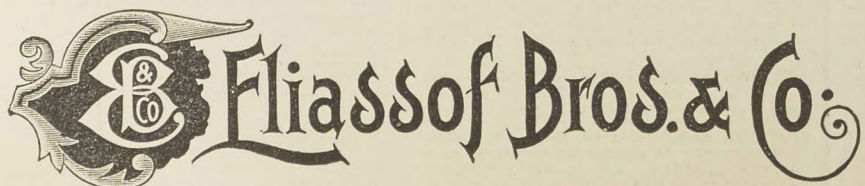


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JUST OUT! Wells' Perfect Self-Conforming Ring Adjuster, cut from 10 K. gold filled stock. Gold in front twice as thick as on back. Ask your jobber for them, or I will send prepaid at once (only on receipt of price), 1 doz. astd. sizes, gold filled, \$2.00; 1 doz. solid 10 K. gold, astd. sizes, \$3.75; 1 doz. metal, astd. sizes, 85c. For samples, one small and one medium large size gold filled and one metal adjuster, 50c. Address **Chester Wells, Jeweler, Meshoppen, Pa.**

THOS. J. JUZEK & CO.,
Repairers for the Trade.

Established 17 Years.

Staff, pivot and jewel jobs returned same day received. All kinds of watch case, jewelry repairing and stone-setting done.

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We handle the best mainsprings and staffs in the world.

Write for prices on repair work.

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The Sherman Safety Pin Protector

For Scarf Pins, Studs and Lace Pins. The latest and best invented. Can be adjusted to any size pin. Price, \$1.00 per doz. For sale by all leading wholesale jewelry and material houses. Samples by mail, 10 cents. If your jobber does not handle it, kindly advise us. **O. SHERMAN,** Inventor and Maker,
 41-43 Maiden Lane, New York City.

Ten Years

is the length of time we have been teaching young men the different branches of the jewelry business. Our prospectus will tell you how successful we have been. Write for it. See ad. on page 778 this issue.

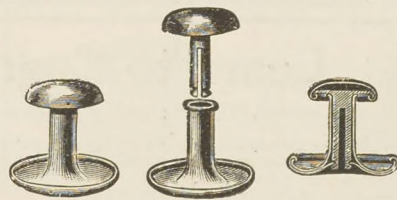
The Philadelphia College of Horology,
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SPECIALTIES:
 Fine E. D. Swiss and American Mainsprings.
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 A TRIAL WILL CONVINCE YOU.



The Only Collar Button

that makes a man happy. Easily adjusted, never cuts the button hole.

The Only Button

for the use of celluloid and rubber collars. Made in two qualities,

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All Jobbers handle them. If your Jobber does not, send to us and we will give you the names of those who do. It is the interest of every Jeweler to send for our proposition.

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Everything in the line of Watch Case Repairing, Gold and Silver Plating, Satin Finish, Engraving and Engine-Turning. Changing Old English and Swiss Cases to take American S. W. Movements my specialty. **OLD CASES MADE NEW.** Silversmiths' Building, 131-137 Wabash Ave., CHICAGO.

Small Advertisements

No advertisement inserted for less than 25 cents.

Under heading "Situations Wanted," ONE CENT per word for first twenty-five words. Additional words and advertisements, THREE CENTS per word.

Under all headings except "Situations Wanted," THREE CENTS per word.

Name, address, initials and abbreviations count as words, and are charged for as part of the advertisement. No display other than two-line initial letter.

To insure insertion money must accompany all orders for advertisements, and copy must reach us not later than the 25th of each month for insertion in the following month's issue.

If answers are to be forwarded, TEN CENTS in postage stamps must be enclosed.

The real name and address of every advertiser must accompany the copy of the advertisement.

Advertisers who are not subscribers must send 15 cents (special issues 25 cents) if they desire a copy of the paper in which their advertisement appears.

Address, **THE KEYSTONE,**
 19th & Brown Streets, Philadelphia, Pa.

SITUATIONS WANTED.

Under this heading, ONE CENT per word, for first twenty-five words. Additional words and advertisements, THREE CENTS per word. No advertisement inserted for less than 25 cents.

BY first-class watchmaker capable of doing railroad and other high-grade work and taking charge of a business. Best refs. Geo. Cochran, Ellis, Kans.

WATCHMAKER, with experience on railroad watches, plain engraver and good salesman. Own lathe and tools; no bad habits; West pref. Want position by June 1st. "R 47," care Keystone.

A POSITION wanted by first-class watchmaker. Have the exp. and tools for high-grade work. Age 35. Permanent place pref. Refs. Address, "D 51," care Keystone.

SALESMAN of ability, with an established trade through Pennsylvania, Maryland, West Virginia and Ohio, is desirous of making a change and connecting himself with a first-class watch and jewelry house. "E 50," care Keystone.

POSITION by young man as letter, monogram engraver and salesman. Address, "B 46," care Keystone.

I WANT a place; am first-class, all-around man. Good salesman, engraving and optics my specialty. 14 years' exp. Address, 47 Grant Street, Fort Atkinson, Wis.

COMPETENT watchmaker and engraver wants permanent position. Has full set of tools including lathe. Best of refs. Address, Herbert E. June, Norwalk, Conn.

EXPERT refractionist, of 10 years' exp., is open for engagement on special dates in Illinois and States adjoining. Retail druggists and jewelry stores pref. Address, "Refractionist," room 601, 103 State Street, Chicago.

JEWELER and engraver, with modern tools, wishes permanent position. Will send sample of work; best ref. "J. H. S.," route A, box 80, Macon, Ga.

WATCHMAKER wants position. Can do all ordinary watch, clock and jewelry work. Own tools; strictly temperate; age 23; best ref. Box 96, Hayfield, Minn.

REFRACTIONIST. Practicing oculist, thoroughly experienced in refracting, open to permanent position with reliable firm. Full particulars and ref. "J. C. L.," 103 Harkness Avenue, Cleveland, Ohio.

POSITION as general letter, monogram engraver and die-cutter. Address, Mr. W. F. Belz, 361 Walnut Street, Elmira, N. Y.

POSITION as general letter, monogram engraver and jeweler. Experience. Address, "S 39," care Keystone.

WATCHMAKER and jeweler, 5 years' exp.; own all tools. Do hard and soft soldering, speak German and English. Address, "Watchmaker," 754 Appleton Street, Appleton, Wis.

AS traveling salesman for first-class house, either general line of jewelry or tools, material, findings and card goods or silverware. Box 60, Augusta, Wis.

BY watchmaker, 20 years' exp.; fine watches, French clocks, jewelry, optical goods; plain engraver. Address, "D 35," care Keystone.

BY watchmaker with exp. on high-grade work; highest ref. Lately head watchmaker in one of the largest establishments in the South who were inspectors for 5 roads. South pref. Address, "Watchmaker," 106 South Second St., Columbia, Pa.

BY watchmaker, jeweler, plain engraver, optician; 5 years' exp. Own tools, trial case—no bench. Steady, prompt; no bad habits. Wish permanent position; married. "C 52," care Keystone.

POSITION as watchmaker, or would accept position as assistant watchmaker; 6 years' exp.; best refs., etc. Ad., Box 101, Roxton, Texas.

POSITION as salesman on the road; watch house pref. At present am proprietor of a jewelry store and have had exp. with the jewelry and watch trade all my life; married, age 27. "F 43," care Keystone.

SITUATIONS WANTED.

I WOULD like a position; have all tools. Or would hire bench room in some window. Address, G. A. Messer, East Alstead, N. H.

YOUNG Norwegian wishes a steady position. Has lathe and nice outfit of tools. Address, Emile Dreyer, 71 Nassau Street, New York.

WATCHMAKER and jeweler, 12 years' practical exp.; thoroughly understands railroad watches. All the latest and best tools; absolutely no bad habits. Box 75, Stoutsville, Mo.

A GOOD watchmaker, jewelry and clock repairer and engraver. Have own tools if necessary. Reference. State wages. Roy B. Philbick, Baraboo, Wis.

SITUATION by young man of 20 as jeweler and watchmaker, 3 years' exp. at bench. Ohio or Michigan pref.; have tools. "T 61," care Keystone.

WATCHMAKER, jeweler and engraver, 12 years' exp. Can give good ref.; married. Would like permanent position. "M 59," care Keystone.

WATCHMAKER, engraver, jeweler, graduate optician—New York and Chicago colleges. An all-around man, age 32, can take entire charge of store; good salesman; have tools. Letters prompt attention. Refs. good. "L 58," care Keystone.

POSITION as assistant watchmaker, jeweler and engraver; also a good salesman. Will work for a small salary to start with. Best of refs. Address, Max Lewis, Pontiac, Ill.

WATCHMAKER and engraver, young man, desires a steady position. Has a full set of tools, including lathe. Pennsylvania preferred. N. N. Copeland, Deronda, Pa.

BY young man who is a first-class, all-around man, at once. A good position in Central Iowa; have tools. Box 82, Weldon, Iowa.

FIRST-CLASS graduate refractionist, watchmaker, clock and jewelry repairer. Have trial case, ophthalmoscope, 1 cord test cabinet, tools for watchmaking. Age 28; good habits; 3 years' exp. L. S. Hazzard, Lewes, Del.

YOUNG man, watch, clock, jewelry repairer and salesman. Prefer Nebraska or close by. Have good lathe and tools; good refs. Wages, \$15. "P 68," care Keystone.

ST. LOUIS pref. Experienced watchmaker, salesman and engraver desires position; tools. State salary. "Watchmaker," 201 Clairmont Avenue, Detroit, Mich.

COMPETENT railroad watch repairer, good jeweler, monogram and souvenir engraver, stone setter, graduate optician and salesman, now employed, wants permanent position with reliable firm. Capable taking full charge repairs or store. 12 years' bench exp. and Bradley horological course. Married, 33; strictly sober and reliable; fine refs. State salary. W. H. Fish, Butler, Mo.

WATCHMAKER, engraver or salesman, 18 years' exp. Rocky Mountains or West pref. Capable of managing business; no small salary considered. "B 70," care Keystone.

BY June 16th, position as second watchmaker. Can give the best of ref. as to character and ability. "O 71," care Keystone.

A POSITION as watchmaker; young man, just finished trade; 3 years' exp. under first-class watchmaker. Address, "R. E. M.," box 634, Muncie, Ind.

WATCHMAKER, jewelry repairer and plain engraver, by a young man. Box 75, Sta. D, Cincinnati, Ohio.

OPTICIAN, engraver and watchmaker. Willing to work for moderate wages to start. Prefer Colorado or near. "Optician," 117 S. College Avenue, Fort Collins, Colo.

FIRST-CLASS watchmaker, engraver and graduate optician, 14 years' exp. American, married; West or Southwest. "H 978," care Keystone.

EXPERT engraver, jeweler, graduate optician, fair watchmaker; 7 years' store exp. California preferred; A1 refs. Chas. L. Taylor, Carnegie, Pa.

POSITION wanted by a first-class monogram and letter engraver. Can do jewelry repairing. Good refs. "S 84," care Keystone.

AS second watchmaker, plain engraver and clock repairer. Wishes position under practical watchmaker to improve on watches. Have Whitcomb lathe and tools. Address, "T," 655 Fourth Avenue, Detroit, Mich.

POSITION wanted by a first-class watchmaker, plain engraver, optician, good salesman. Eastern States pref.; best refs. State salary paid. "H 83," care Keystone.

GRADUATE optician, jobber, clock repairer and salesman desires permanent position with jewelry store. Best of ref. sent. "E 55," care Keystone.

FINE watchmaker, first-class jeweler and engraver desires situation. 7 years' practical exp.; fine refs. and all tools. Box 132, Butte, Montana.

WATCHMAKER—good refractionist, good on jewelry repairing, good salesman, engraver 15 years. Refs. Pennsylvania pref. Go anywhere. D. T. Davies, care J. W. Clark, Mt. Vernon, Ohio.

WATCHMAKER and clock repairer. Single man. 15 years' exp.; no engraver. Ohio or adjoining States pref. Address, E. Scherer, 519 North Street, Sidney, Ohio.

POSITION by young man to do repairing and also wait on trade. Experienced. Good ref. "E 81," care Keystone.

SITUATIONS WANTED.

WATCHMAKER and optician wants position. 5 years' exp. Can be generally useful. A1 ref. An all-right man at \$15 per week. Own tools and trial case. South pref. "S 60," care Keystone.

YOUNG man wishes position as watchmaker. Also understands clock and jewelry repairing, hard soldering. Fair engraver. Refs. State particulars in first letter. Sigler, 62 Eighth Street, Chillicothe, Ohio.

PRACTICAL watchmaker and salesman. Familiar with railroad inspection. Fair plain engraver and jeweler. Age 28; 7 years' exp. Single. Good habits. Could manage store or take road position. State wages and hours. Photo, if desired. Address, G. L. Abbott, 606 South Walnut Street, Lansing, Mich.

YOUNG man, first-class jewelry repairer and stone setter; also gold and silver plater and polisher. A. Marder, 710 East 162d St., New York City.

A1 **WATCHMAKER**, optician, engraver and salesman desires position with good firm. West pref. Honest, sober, industrious. With last employer 4 years; 8 years' exp.; own tools; good appearance; best refs. Salary \$25 weekly. C. A. Greybill, room 42, 69 Dearborn St., Chicago.

SITUATION as watchmaker, engraver and all-around man. Gilt-edge refs. as to character ability, etc. Address, "M 65," care Keystone.

MAY 1st, by young man as watchmaker, engraver and all-around man. No bad habits. Can give best of refs. as to character, ability, etc. Address, Frank McAllister, Morrison, Ill.

WATCHMAKER, jeweler, optician, engraver and first-class salesman. Young man of good appearance, with good habits. Owns tools. Best of ref. Speaks German fluently. "R 64," care Keystone.

WATCHMAKER, engraver, jeweler and optician. Good all-around man, not an expert. Own tools. Steady and honest. "Watchmaker," 1326 State Street, Schenectady, N. Y.

WATCHMAKER, plain engraver, wants position. Refs. 14 years' exp. Age 30. American. New England States, Massachusetts pref. "B 85," care Keystone.

FIRST-CLASS watchmaker, 20 years' exp., wishes to change. Familiar with inspection and all high-grade and complicated work. Thorough and rapid. "B 86," care Keystone.

BY a competent watchmaker, jeweler and engraver; also capable of manufacturing fine jewelry to order. Own tools. Married. Strictly temperate. "S 82," care Keystone.

WATCHMAKER and graduate optician, 20 years' exp. 35 years old. German-American. First-class, quick workman. All tools. Best refs. Good on staffs, pivots, cylinders. Near N. Y. C. Dreher, 2382 Eighth Avenue, New York.

YOUNG man 24, as second watchmaker; also first-class jeweler, clock repairer. 8 years' exp.; good salesman. Have good lathe and tools. Best habits. Ref. West pref. "S 90," care Keystone.

YOUNG man, 27, as clerk in jewelry store in Philadelphia or within 30 miles; or Atlantic City. 7 years' exp. A1 refs. Box 83, Millinburg, Pa.

DO you want an experienced, steady, sober, reliable and all-around jeweler, plain engraver and optician. About 15 years running store and optical business of my own. Recently sold out. Spent \$1000 learning these trades. Have 4 jewelry and optical diplomas. Could go at once. Choice refs. Reasonable wages. E. A. Maxwell, Petersburg, Ind.

SUCCESSFUL optician, watchmaker, jeweler. Own trial set. O. K. on clocks, ordinary watch work and jewelry repairing. Practical, experienced. Good refs. "Optic," Bentonville, Ark., care J. M. Traylor.

FIRST-CLASS watchmaker who is experienced on railroad work, wishes steady position. Can give best of refs. "B 89," care Keystone.

WATCHMAKER, jeweler and engraver, young man, wants a position at once. Good schooling. Will work for reasonable salary to get store exp. Good habits and not afraid of work. Walter H. Bowser, Kittanning, Pa.

\$15 PER week for first-class engraver. Chester Lindsey, Lola, Kans.

EXPERT watchmaker, plain engraver, optician, 15 years' exp., holding steady position, would change for position that suits. Salary, \$25 per week. "H 88," care Keystone.

HELP WANTED.

UNDER THIS HEADING THREE CENTS PER WORD.

WANTED, for New York City, competent watch and jewelry salesman. One capable of taking in repairing. Address, "L 950," care Keystone.

FIRST-CLASS all-around watchmaker and jeweler; must be a good engraver. "W 789," care Keystone.

ENGRAVER and jewelry repairer; one who is used to monogram work and stone setting. Must be a first-class man and a hustler. Refs. and sample engraving required. Good wages to right party; begin middle of May. Chas. Olson & Co., 215 Central Ave., Minneapolis, Minn.

THOROUGH watchmaker, jeweler, salesman and plain engraver. Pop. 2500. Pleasant, permanent position for right man. Box 264, Springfield, Tenn.

HELP WANTED.

FIRST-CLASS watchmaker, jeweler and engraver. Permanent position, good salary. S. B. Frank & Co., Helena, Ark.

OPTICAL jobber wanted. A first-class jobber and all-around man for shop. Not a graduate, but one who understands shop work—first-class rimless man. "G 32," care Keystone.

WATCHMAKER; moderate salary or commission. Salary expected, refs. Box 118, Cochran, Ga.

A RELIABLE, single, young man for engraving and jewelry repair work. Permanent position for good workman. "F 37," care Keystone.

A FIRST-CLASS watchmaker for New York City. Address, "L 951," care Keystone.

TRAVELING salesman for wholesale optical line. Refs. must be first-class; permanent position for a hustler. Apply, D. V. Brown, 740 Sansom Street, Philadelphia, Pa.

THOROUGH, competent watchmaker and engraver. Send picture, ref., full particulars and wages wanted. Apply, W. H. Mendham, Dawson, Yukon Territory.

FIRST-CLASS watchmaker and engraver. State wages and send refs. with first letter. None but those who mean business need apply. Ed. F. Mayer, Butte, Mont.

WATCHMAKER and jeweler for month of June. Good salary. Dr. C. W. Gray, Nelsonville, Ohio.

HONEST jeweler to manage small store, do the bench work. Small bond or cash guarantee required. Box 744, El Reno, Okla. Ter.

WATCHMAKER, jeweler, engraver and salesman who has \$4000 to invest, and who can take personal charge of business. A fine opportunity. Tennessee town. Address, "P 72," care Keystone.

WATCHMAKER, fair engraver, jewelry repairer; June 15th. \$18 to \$20 week. Good refs. Retiring workman will sell new man set tools, including lathe, cash or instalments. "W 66," care Keystone.

MANUFACTURING jeweler for new work and repairing; steady position. Ad., Atlanta Jewelry Manufacturing Co., Atlanta, Ga.

WATCHMAKER in country town in Indiana, who can do good jewelry work and good, plain engraving. Good opportunity for the right man. Address, Lock box 305, Crown Point, Ind.

WATCHMAKER and jeweler. State age, exp.; married or single. Must be well recommended; \$15 per week. N. R. Heath, Neodesha, Kansas.

MANUFACTURING jeweler, clock repairer, engraver. Must be first-class. Kruckemeyer & Cohn, Evansville, Ind.

WANTED, first-class watchmaker, engraver and salesman, competent to take charge of jewelry department. Permanent position to right man. Location: Central Iowa. Address, "K," care F. F. Strayer, Cedar Falls, Iowa.

RELIABLE representative for Iowa, Nebraska. Fine salary and commission. Fine general line, including combination goods. None but experienced need reply. "R 56," care Keystone.

LARGE manufacturing company in the Northwest, making sterling silver, plated ware, clocks, novelties and kindred goods, need an A1 sales manager, capable of placing output of factory with about 6 competent salesmen. Sufficient capital for business. Territory: west of Pittsburg to coast. State exp., former employers, amount of sales and salary expected. R. B. Snyder, room 4, Minnesota Loan and Trust Building, Minneapolis, Minn.

A PERMANENT position to an experienced watchmaker. C. Aug. Carmany, Coatesville, Pa.

WATCHMAKER and engraver, permanent position. State salary, age and exp. Send sample engraving. Louis Ott, Mansfield, Ohio.

WATCHMAKER, jeweler, optician; young man, 25 to 30. Answer with ref., exp., photo, and sample of engraving. \$12.50 to \$15 per week. Evans Drug & Jewelry Co., Morganfield, Ky.

WANTED, an optician; must also be A1 jewelry salesman; permanent position and \$50 per week to the right man. The Beck Jewelry Co., Beaumont, Texas.

ASSISTANT watchmaker, clock and jewelry work, also help in store; honest and good habits; permanent position. State exp., refs., wages expected first letter. Box 214, Rockford, Ill.

YOUNG man to do watch and clock work and jewelry repairing; a good workman with only the best of habits. Harvey B. Locke, Amesbury, Mass.

WATCHMAKER, German preferred; some clock and jewelry work. S. E. Avery, South Haven, Mich.

WANTED.

UNDER THIS HEADING THREE CENTS PER WORD.

WANTED, ship's chronometer. C. W. Little, 74-76 Cortlandt Street, New York City.

WANTED, Swiss regulator movement or complete clock, cheap. Address, C. F. Gates, Macedon, N. Y.

WATCH sign and jeweler's safe. Give complete description and best price, freight prepaid. F. M. Barney, Elm Creek, Nebr.

FIRST-CLASS trial case cheap for cash. O. Y. Ladd, 467 Eighth Avenue, New York.

WANTED.

ALL-AROUND watchmaker, young man with exp. and \$2000 cash, to buy part interest in business established 15 years, in good town, 1500. Fine farming country. Must be competent to manage. Refs. required. J. H. Weber, druggist, stationer and jeweler, Cascade, Iowa.

TRIAL set and lens measure. Jno. B. Prescott, Durango, Colo.

CROWELL No. 2 positive pressure blower. One-half horse-power electric motor, first-class condition. "Motor," care Keystone, 103 State Street, Chicago.

EVERY kind of gold and silverware, jewelry, watches, platinum. Market value paid. Sent by express or registered mail. Price not satisfactory I will return all articles. J. L. Clark, refiner and sweepsticker of gold and silver (established 1870), 727 Sansom St., Philadelphia.

SEVERAL optical instruments. Send full description and lowest cash price to Wahlstad, 1251 Broadway, Oakland, Cal.

W. W. JEWELRY rest in good condition. Address, O. Homer, 4544 Sansom Street, Philadelphia, Pa.

OPHTHALMOMETER, prisoptometer, Geneva ophthalmoscope and retinoscope combined, or De Zeng luminous retinoscope and ophthalmoscope. Will pay cash. Send full description and price with first letter. J. A. Hill, Catskill, New York.

JEWELER to locate at Washington, Conn. Good opening; nearest jeweler 8 miles. Summer trade about \$20; winter little less. W. T. Kilbourn, Washington Depot, Conn.

NEW model Chambers-Inskoop or Hardy ophthalmometer. Send lowest cash price. A. P. Hirzy, Grand Rapids, Wis.

PARTNERSHIP. Experienced optician, with \$1000 to \$2000, wants interest in prosperous, unnumbered optical business. California, San Francisco or vicinity pref. Cash to increase stock or equipment. Address, "T 63," care Keystone.

GENEVA combined instrument for cash. Gaylord, Brookings, S. Dak.

FOR SALE.

UNDER THIS HEADING THREE CENTS PER WORD.

STORES, STOCKS AND BUSINESSES.

JEWELRY store, 28-foot wall case, 20 feet shelving, 54 feet counter, 38 feet show cases, safe, roll-top bench and some other things, \$500 (cost \$1000), and as much stock as you wish. Annual sales \$7000. No competition. Fine opportunity for some one with small capital. Location South, the place for people with lung trouble. "S 758," care Keystone.

JEWELRY store in Michigan town of 4000. Stock and fixtures about \$4000, in nice condition, doing good business. Will sell cheap. Ill health. "B 953," care Keystone.

WELL-ESTABLISHED jewelry and optical business, in Central Massachusetts city of 65,000. Stock and fixtures about \$10,000. Can reduce stock. Good reasons for selling. "P 17," care Keystone.

GOOD repairing business, including safe, fixtures and good will in New York City. Ad., Emile Dreyer, 71 Nassau St., New York.

SMALL stock of watches, clocks and jewelry in drug store. Good location, cheap rent; going out of business. C. F. Donaldson, Grand Meadow, Minn.

MUST sell! Poor health! Excellent chance for jeweler and optician with small capital. Bonanza in spectacles. No opposition in 10 miles. Small town, but bustling; rich farming community in Michigan fruit belt. Low rent, or will sell property; terms to suit. Invoice \$2500; can reduce. Dickinson, Eau Claire, Mich.

ELEGANT store; long lease; booming town; Western Pennsylvania. Investigate this. Address, "A 45," care Keystone.

\$3000 BUYS \$4500 stock, fixtures, lease and good-will. Satisfactory reason for selling, pop. 15,000. Phil Levy, Henderson, Ky.

JEWELRY business, fixtures. Address, 344 Jennings, Cleveland, Ohio.

ONE-HALF interest in one of the very best jewelry stores of the Southwest. Capital required, \$12,000 to \$14,000. Established many years in one of the fastest growing cities of the United States (about 40,000 now). None but a strictly first-class man need apply. One of the partners wishes to retire. Full particulars given on application. Refs. required and given. Address, "H 34," care Keystone.

OLDEST jewelry business in the hustling paper city, Berlin, N. H.—White Mountains—1200 pop. Established 20 years; bench work has been \$1500 per year. Great opportunity. Stock is being run down. Will require around \$4000; will sell at a bargain. Am tired of confinement and have large outside interests. A. B. Forbush.

ESTABLISHED jewelry and repair business in growing town. Invoice \$400; \$350 cash takes it. Good reason for selling. Address, E. E. Huss, Savonburg, Kans.

ESTABLISHED jewelry store in New York City for sale on account of sickness. Stock and fixtures total about \$3800. I want \$3500 for it, or will take \$500 for fixtures, etc., and reduce stock to any reasonable figure. Business makes \$2200 per year above expenses. Address, Jones, 94 Feronia Way, Rutherford, N. J.

FOR SALE.

STORES, STOCKS AND BUSINESSES.

\$1800 BUYS fine jewelry store in large town; fine country. No competition for 20 miles. Good reasons for selling. Address, "Jeweler," Edgar, Wis.

A GOOD-PAYING jewelry business in Central Indiana town of 4000, or half interest in jewelry and drug business in Illinois town of 2000. Address, P. O. box 72, Attica, Ind.

OLD-ESTABLISHED jewelry and optical business. Bench work pays more than expenses. Good business and no opposition. Invoice about \$2000. Box 89, Shiner, Texas.

ON account of poor health, a good-paying jewelry business for sale. No opposition. Ad., Box 146, Atwood, Ill.

FINE little jewelry store in Chicago; established 12 years—good business street. Rent, \$15; value about \$2000. Address, "F. C. B.," care Arthur L. Wiffin, 137 Wabash Avenue.

AN old-established jewelry store in one of the best Indiana towns. Terms to suit. Must be sold as present manager is going West. Ad., "55," care L. H. Schafer & Co., Chicago, Ill.

THE only jewelry store in Illinois manufacturing city of 3000. Sales \$3100; repairing \$1100. Stock and fixtures about \$1600. Low rent. "C 42," care Keystone.

ONE of the best jewelry stores in Allegheny county, located at 110 Federal Street, Allegheny, Pa., across the bridge from Pittsburg. Doing a business of \$16,000 a year under poor management. Stock and fixtures will invoice between \$8000 and \$9000; would reduce stock to \$6000 if necessary. This store would make one of the best pawnbroking stores in the country. There is one pawnbroker in this town that has \$50,000 loaned out at 20% a month all the year around, and I do not consider his location as good as mine for the purpose. Reason for selling is, I have 2 other stores and I cannot take care of them all. Answer at once, if you have got the cash, for this is an opportunity that you should not miss. Inquire at the Liberty Jewelry Co., 403-405 Water Street, Pittsburg, Pa.

OPTICAL store, located in New England city, pop. 100,000. Stock and fixtures will invoice about \$2000. Net profits last year \$1800. Store located in heart of business center; low rent; all modern fixtures; motor power; dark room. Reason for selling, other business. "C 77," care Keystone.

ONLY jewelry and optical business in town of about 1200. Repairs, \$700; other profits \$800. Clean stock, tools, fixtures and good will \$2800. Rent \$8.33. Healthy location. Exceptionally nice community. Good schools. Electric lights. Water works. Telephones. New residence if desired. "M 78," care Keystone.

\$500 CASH, balance on easy terms, jewelry stock and fixtures \$3200. Southwestern Iowa. About 6000 pop. Will reduce stock to suit. Reasons for selling, poor health. "M 53," care Keystone.

GOOD, clean stock jewelry, tools, fixtures. Invoice \$2500. Can reduce stock. F. O. B. cars if purchaser removes goods. Lock box 40, Blandinsville, Ill.

LARGE optical business, magnificent, well-equipped store, electric-grinding plant and all modern appliances. Doing a refracting business of about \$9000 a year. Centrally located in Eastern States, drawing from a pop. of 150,000. Established 4 years. Price low. Write for particulars. "B 80," care Keystone.

JEWELRY and china, well-selected stock, new fixtures. Best location in city. County seat; 5000 pop. Three railroads, division point and good farming country. Eastern Nebraska. Good business, good run of work, good prices. About \$4000. Have made money. Want to go to larger place. Address, "Bargain," care Woodstock, Hoefler & Co., Kansas City, Mo.

PARE chance for small capital. \$500 buys fixtures, good will, etc. Established business. Receipts over \$4000 yearly. Northern Ohio. Box 216, Pittsburg, Pa.

NEATEST optical store, heart of city (300,000). Ground floor, main street. Stock and fixtures invoice \$350. Make offer. Must sell by May 15th. Rent \$25. Optical Institute, 605 Grand Avenue, Milwaukee, Wis.

THE undersigned will dispose of the stock of gold frames and mountings, gold filled frames and mountings, nickel and aluminum frames, gold filled temples, etc., and all-finished lenses, formerly belonging to Mr. M. Scheinman, wholesale optician, Chicago, who has recently retired from the optical business, at below the actual manufacturer's cost. A descriptive list of goods and prices on application. A saving of 33% to 50 per cent. fully guaranteed. Buyers of large quantities, your correspondence solicited. Address, with refs., to Wm. Grossman, 416 South Paulina Street, Chicago, Ill.

\$6000 BUYS a well-established jewelry business with one of the largest jewelry and watch-repairing trades in the State, in the heart of the business center, on Main Street, Hartford, Conn. Well equipped with machinery for jewelry manufacture, up-to-date fixtures; a good, clean stock. Chance of a life time to right party. "F 36," care Keystone.

JEWELRY and optical business, Pennsylvania town 1500, 4000 outside to draw from. Bench work \$75 month. Stock and fixtures \$1500. Can reduce to suit. No opposition. Good reasons for selling. Address, "P 33," care Keystone.

(Continued on page 846)

FOR SALE.

STORES, STOCKS AND BUSINESSES.

(Continued from page 845)

JEWELRY store, stock, material and fixtures; will invoice about \$1100. Good reason for selling. Ed. Arnold, Lakefield, Minn.

JEWELRY stock and fixtures. Best location in city of 10,000 pop. In Northern Iowa. Four railroads. New stock and new fixtures. Good reasons for selling. Address, "K 30," care Keystone.

JEWELRY, music and phonograph business, established for 16 years. Good location; rent cheap. Reason for selling, have other business. For full particulars address, A. B. Wahl, North Side Square, Lafayette, Ind.

SMALL stock in good town of 1000 inhabitants. No opposition. Good repair trade. Rent and heat free. Or will sell fixtures alone. F. D. Rowley, Factoryville, Pa.

FINE jewelry, souvenir and optical business in growing summer-resort town. Very healthy mountain climate. Stock will invoice about \$4000 to \$5000. All enquirers enclose stamp. None but cash buyers considered. Have saved \$10,000 in ten years. Elegant store and fixtures. Rent moderate. "V 48," care Keystone.

OPTICAL establishment, modern and exclusive. Best location in New York City. Bargain. Call or address, L. S. Richardson, 714 Fuller Bldg., New York.

BEST opening for a large retail jewelry store in city 175,000 inhabitants. Great inducements to the right party. Beautiful store, good location, unquestioned reputation. Fine outlet for high-grade goods. An opportunity for a hustler backed up by a manufacturer of fine goods, to get best trade in town. Will not require much cash. This is something unusual. It will pay to investigate. "R 57," care Keystone.

HIGH-CLASS jewelry store in the prettiest city in the Northwest. Never had hard times; good schools; State University; surrounded by lakes; excellent fishing and hunting. Store profits \$10,000 annually; located on main business corner; three large show windows; large transient trade. Location has been a jewelry store for 50 years; no old stock. Reason for selling, ill-health and loss of hearing. This store will pay for itself in two years. Will sell at invoice, no bonus; or will exchange for like store in warm climate. Address, "Jeweler," care Wm. A. Rogers, 137 Wabash Avenue, Chicago.

NEW stock of jewelry and store fixtures. Will be sold at a bargain. Mrs. F. W. Morton, Big Rapids, Mich.

\$2500 FOR jewelry business. Last year's sales \$8000. Best location in city of 9000. Reason for selling, illness. Located Central Ohio. Don't write unless you mean business. "G 69," care Keystone.

ONLY jewelry-optical store in Davis City, Iowa. Pays. Work for one man. O. W. Halstead.

A FIRST-CLASS jewelry store established 17 years, doing good business; complete stocks, fixtures, tools. Located on the principal business street of York, Pa.—York is the most progressive and also the third best mfg. city in Pennsylvania; pop. 42,000, with a number of suburban towns of 8000 pop. within a mile of the city; the best agricultural county in the State. Address, H. M. Rebert, York, Pa.

GOOD-PAYING jewelry store, Northeast Kansas; county seat, 2000 pop.; water works. Fine fixtures, floor cases, new. Run 14 years by present owner. Can reduce to \$1200 or \$1500 cash. Clean stock. One other small store. Must change climate. "W 967," care Keystone.

STOCK of watches, clocks, jewelry, cut glass, musical instruments and bicycles, cheap, want to go West. F. E. Lenhart, Argyle, Minn.

PROSPEROUS jewelry and optical cash business in Kansas. Pop. 35,000; growing rapidly. Good climate, location, prices, prospects and reputation. Only reason for selling, necessity of change for wife. Splendid opportunity; buy now and get acquainted before holidays, \$4000, will pay to enlarge or can be reduced. "D 964," care Keystone.

A RARE chance for a good watchmaker, to take old stand with good business and fine run of bench work. Watch inspector position attached. Large railroad center, in healthy town in Pennsylvania. Little capital required. Address, "H 971," care Keystone.

A \$3000 STOCK of jewelry and fixtures for sale at 60 cts. on the dollar. Frank Ferris, trustee, 507½ Colo. Ave., Colo. City, Colo.

JEWELRY store, new stock, new fixtures \$2000. Pop. 30,000. "S. & S.," 116 First Avenue, Cedar Rapids, Iowa.

THE leading optical business in an Indiana city of over 17,000. \$3000 to \$4000 a year. Stocks, fixtures, instruments and good will for \$600 cash. Just about invoice price. I have the good will of nearly all the M. D.'s. "D 62," care Keystone.

FIRST-CLASS jewelry business in Central Michigan, located in live manufacturing town. "M 94," care Keystone.

\$3000 BUYS paying jewelry-optical business, county seat town of 2500. N. A. Heath, Jr., Hebron, Nebr.

JEWELRY store for sale in Southeastern S. Dak.; population 1000; nearest competition 18 miles; railroad watch inspector; stock of \$2000; a good thing. "P 54," care Keystone.

FOR SALE.

STORES, STOCKS AND BUSINESSES.

FOR sale, a good-paying jewelry business in the best town in the Indiana gas belt. Am interested in a manufacturing business and must dispose of jewelry business. Will sell at a bargain on good terms. E. M. Wilson, Anderson, Ind.

GOOD-PAYING jewelry business, established 1882; am in the telephone business, which needs all of our attention. In the gas and oil belt; city now lighted with gas 15 cents per 1000 feet; pop. 2500. Stock \$4000; can be reduced. Will rent building. Best stand in the city; has always been jewelry store. Spangle, Chetopa, Kans.

LEADING jewelry and optical business; nice Ohio town of 8000; handsome store, clean stock; paying \$3500 yearly profits; invoice \$5000 to \$6000; competition light; honest reasons for selling; books open to inspection; close investigation invited. Don't write unless you have cash and mean business. "L 28," care Keystone.

RARE opportunity. For sale, a watch, jewelry and optical store on principal business street of Los Angeles. Established for 19 years. Stock, fixtures, safe and good-will, \$4000 cash, if sold at once. Owner going out of business on account of old age. Address, G. Stoesak, 511 South Spring Street, Los Angeles, Cal.

\$2200 BUYS one of the best jewelry businesses in the State of Wisconsin. City 3500 inhabitants; only 1 other watchmaker; no opticians in town. City is about center of State. Nowhere paid better prices for repairing. Have to be sold by May 15; after that date business is not for sale. Reasons for selling, have to go to Europe to settle estate. "V 91," care Keystone.

CHICAGO jewelry engraving business paying \$227 to \$300 monthly; 1 man can do all work; good reason for selling. Bargain for quick cash customer. Address, "R. Rogers," Room 601, 103 State Street, Chicago.

CHICAGO jewelry store and optical business, established 23 years. Modern stock, including assortment of fine selected loose and set diamonds. Solid cherry fixtures, 3 wall and 7 show cases, etc. Hardy ophthalmometer, refractometer, oculist's trial case and fine equipped dark room. In my own modern store building, especially built for the purpose. Store rent to be \$35. Lease as requested. Complete invoice \$7000; can be reduced. Bench work, \$200 per month. Owner wishes to retire. "H 916," care Keystone.

ATTENTION, please. To an industrious jeweler and optician, German descent, looking for an A1 well-patronized jewelry business, clean stock. Invoice \$6000, fixtures \$700. Will sell at 85c. on the dollar of invoice price in bulk. Can reduce stock to \$4000, keeping invoice of watches and plain rings. Only 2 jewelers of same dimensions; 2500 pop.; rich farming and dairy country; central Wisconsin. Terms, spot cash. Positively no trading. Bank refs. to accompany first letter; no attention paid otherwise. "B 49," care Keystone.

\$1000 BUYS \$1500 stock, fixtures and safe, in railroad town of 3500, Northern Minnesota; good run of watch repairing. Good reasons for selling. "H 93," care Keystone.

WELL-ESTABLISHED jewelry business in fine Oklahoma town of 1000 inhabitants, can be had for cost of fixtures, about \$350. December sales were \$551.95. No competition. Other business. Address, W. Merton Stoffle, Gotebo, Okla. Ter.

JEWELRY store and small stock in good town of 1000 in Northwestern Ohio. No opposition. Part on time. Good reasons for selling. "T 79," care Keystone.

SMALL stock watches and jewelry in mining town. Big repair trade. Good chance for workman with small means. "S 76," care Keystone.

PROFITABLE, up-to-date jewelry store, 90 miles from New York, mfg. town 4000 pop., New York State. No opposition. Healthy climate. Will sell for \$5300 cash. Have other business. Grand opportunity. "E 46," care Keystone.

GOOD-PAYING jewelry and optical business in Southern Indiana town. Pop. 1800. Big country trade. Stock and fixtures invoice about \$850. Competition very light. Write for full particulars. A good opportunity for some one. Good reasons for selling. "W 29," care Keystone.

RARE bargain to man with \$2500 cash. Well-established jewelry and optical business in Pennsylvania manufacturing town of 8000. Small towns and summer resort connected by trolley. Must sell by June 15th. Have other business. "J 92," care Keystone.

NICE jewelry business, stock and fixtures. Price right. Box 156, Hickory, N. C.

ON account of bad health will sell for \$600 cash the only optical business in a Southern town, which is the county seat, including 15,000 inhabitants and a surrounding pop. of 75,000. Address, "D 735," care Keystone.

CLEAN, modern and elegant jewelry business located in a thrifty Wisconsin city of 20,000 people. Stock and fixtures valued at \$10,000. Stock could be reduced. Net profit on business \$2500 per year. Earnest prospective purchasers should address at once "P 67," care Keystone.

FOR SALE.

UNDER THIS HEADING THREE CENTS PER WORD

MISCELLANEOUS MERCHANDISE AND EQUIPMENT.

A BARGAIN. One 15-foot wall case; also 2 or 3 plate-glass show cases and tables. Write for descriptions. W. C. Davis, Elkhart, Ind.

ONE electro-plating dynamo for gold, silver and nickel-plating; baths and solutions complete. Good as new; \$20. Polishing lathe with brushes, complete; \$5. Box 83, Shiner, Texas.

I HAVE thousands of dies, hubs and cutters, the accumulation of years in manufacturing. Remodeling tool room, and will close them out, assorted, just as they are, at junk prices. Dies, 50 cents to \$1; hubs, 50 cents; cutters, 25 to 50 cents. R. J. Macnair, 220 Eddy Street, Providence, R. I.

ONE oak wall case, new, 10 feet; 1 oak wall case, new, 8 feet; 1 oak L-combination, case, 12 feet, plate-glass top, adjustable shelf brackets; 1 chronometer in fine order, palladium hairspring. Address, Box 401, La Porte City, Iowa.

ONE Moseley face plate, only \$2.50. Conturier, 191 James, Grand Rapids, Mich.

THIRTEEN ring, charm, chain, watch show-case trays, plush, cheap. Murchison Jewelry Co., Cheyenne, Wyo.

STARK lathe, Universal head, jewelry attachment, tail stock, good complement of chucks, 80-pound foot wheel, watchmaker's bench, comfort watch-glass cabinet and good outfit of watchmaker's tools. A good outfit at a price. Prefer to sell entire outfit. D. H. Cloyd, Decatur, Ill.

JEWELERS' rolling mills, fine condition, cheap. 909 Greenwich Street, Philadelphia.

\$40 FOR new Geneva folding trial case set, Geneva Optical Company, No. 948, listed at \$56. Contains 32 pairs each + and - spheres, 20 pairs + and - cylinders, 10 prisms, 11 discs, one \$8 trial frame and one single cell frame. Have also an extra empty seal folding case for above combination in 1½ inch lenses; will sell case only for \$4.50. Address, C. H. Ward, room 601 Columbus Memorial Building, Chicago.

GENEVA trial case. Portable. Cost \$100. Will take \$50. Miss Maude Dixon, Sabina, Ohio.

SNYDER chuck \$5. 312 State Mutual Building, Worcester, Mass.

DE ZENG'S refractometer, in first-class condition, for \$25. Apply to Geo. H. Clark, jeweler, Daytona, Florida.

RAMBLER automobile, nearly new. Will sacrifice. 286, Seaford, Del.

PAIR each flat, ring and wire rolls; 1 gas enameling and melting furnace, with foot blower; 1 drop hammer. L. Mueller, 691 Brush Street, Detroit, Mich.

LATHE—Webster-Whitcomb, 1½, tailstock, 30 chucks; good condition, \$20. Box 86, Mt. Washington, Md.

WEBSTER-WHITCOMB lathe, without tail stock, \$14; De Zeng refractometer, \$18; Chambers, Inskeep ophthalmometer, \$38; dial gage for pivots, \$2.50; slide rest for W-W lathe, \$5; face plate, \$4; jeweler's 35 lb. drop and 1 doz. link button dies, \$35; Webster-Whitcomb wheel cutting fixture, large index plate and pointer, universal face plate, 3-slide slide rest, 3 doz. burs and cutters, 1 doz. rounding up cutters, Hardinge escapement matching tool, 1 small diamond scale, Brown & Sharpe micrometer gage measures .01 of a mm, new K. & D. staking tool; plating dynamo Z. L. & L., cost \$75, sell for \$35; large foot press and tools to make rimless eyeglass springs, studs and guards and rimless spectacles; large foot lathe, 4 ft. back geared, with 1 doz. drills, chuck, face plate and large slide rest, cost \$75. Best offer takes the lot. "K 40," care Keystone.

JEWELER'S fire-proof safe, Cary make, aluminum finish; inside dimensions, 14x18x33 inches; height of safe, 56 inches. Has been in use 2 years and is in perfect condition. First offer of \$100 takes it. It cost new \$125. Address, W. H. Cowley, Clearfield, Iowa.

TRANSIT instrument (Bliss) and Engle engraving machine. Both in good condition. Cheap. Mrs. A. Shibley, Wooster, Ohio.

ONE Javal ophthalmometer, old style, in good order; \$15 net. 1-A. Jay Cross retino-skiameter, in good order; never been used; cost \$40; will sell for \$25. 1 prisoptometer, good as new; sells for \$21; will sell for \$12. If interested, address, Fred. Barshel, 517 Madison Avenue, Toledo, Ohio.

EATON & Glover engraving machine, almost new, complete with type. Make cash offer. S. N. Meyer, 1231 Pennsylvania Avenue, N. W., Washington, D. C.

EATON & Glover engraving machine, first-class condition. A bargain. Clark & Conklin, Cazenovia, N. Y.

GENEVA retinoscope, used 1 month. Clark & Conklin, Cazenovia, N. Y.

A COMPLETE set of watchmaker's tools at half price. Ad., 3205 Oak St., Kansas City, Mo.

18 WIRE 5-wheel chucks, Boley, W. W., \$5. Avery, Auburn, Nebr.

COMPLETE set of optician's instruments, good as new. C. Ridderhof, Grand Rapids, Mich.

ENGRAVING machine, Eaton & Glover make, nearly new; price, \$35. Lock Box 22, Lansdale, Pa.

MUSIC box, 205 tunes, 16-inch discs, new, \$85. Jay Auten, 121 Summit St., Toledo, Ohio.

FOR SALE.

MISCELLANEOUS MERCHANDISE AND EQUIPMENT.

EATON-ENGLE engraving machine, \$48. Address, G. L. Twaddell, Ash Grove, Mo.

WILLIAMS typewriter, Blickensderfer, both in good order. S. W. Hall, Norwich, Conn.

ROTARY pivot polisher fitted to T rest of Rivett lathe. S. W. Hall, Norwich, Conn.

GRANDFATHER (genuine old English) clocks for sale, with arch and square brass dials, oak and mahogany cases, fine specimens. Photographs sent by Mason, Jeweler, Barnsley, Yorkshire, England. Established since 1650.

OPTICIAN'S trial case, \$30; small gold rolls, \$12.50. H. Brodhun, Wilkes-Barre, Pa.

FRANCIS engraving machine, full set of attachments, 5 sets type used 2 years, good as new, cost \$90; will sacrifice. Make me an offer. J. C. Koempel, Galena, Ill.

FOR SALE OR EXCHANGE.

UNDER THIS HEADING THREE CENTS PER WORD.

COMBINATION tandem bicycle, Royal Worcester, good condition. \$25, cost \$125; will exchange. Prentiss Hallenbeck, Catskill, N. Y.

SONG slides and films, for Geneva combined instrument. Gaylord, Brookings, S. Dak.

ONE 7-foot hanging Waterbury regulator, golden oak, 15 gross crystals in cabinet, bench, foot wheel and counter shaft. Bargain. J. D. Blackshaw, St. Johnsbury, Vt.

FINE new Washburn mandolin and case. Want diamond, Parker hammerless, typewriter or what? 191 Iowa Avenue, Aurora, Ill.

GENT'S Cleveland chainless, coaster brake bicycle, new, never ridden. What have you? Neville, Conneautville, Pa.

FOR jewelry and repair business, or farm, lunch room, crossing B. & O. and Big 4, by depot; rented, \$200 year; first-class machine shop and tools; small dwelling; 2 lots; value about \$6000. Also improved gasoline engine, only one made using no batteries; hot-tube dynamo or other mechanism. Exchange all or either. Box 22, Shakespeare, Ind.

ELECTRIC slot graphophone, \$225; spring slot graphophone \$35; New Century engraving machine, \$100; gasoline engine, \$135, and other goods. Want piano, piano player, National cash register, regulator, cyclopedia set and other books. J. Stewart, Jr., Burlington, N. C.

WANT to trade 1600 acres of South Dakota land for full jeweler's stock. Can divide land in quarters where it is necessary. Address, A. D. Tinsley, Sioux Falls, S. Dak.

\$80 GENEVA retinoscope, nearly new, will exchange for double-barrel hammerless shot gun. B. S. Gaylord, Owosso, Mich.

\$250 CARY safe, steel lined, silverware or anything, for auction sales. H. B. Lindsey, Iola, Kans.

HARDINGE pivot polisher, good as new. Want optical trial case, ring and flat rolls. John J. Ruch, Cissna Park, Ill.

BEAUTIFUL silver water pitcher, tilting, quadruple plate, with cup and tray, new. Regular price \$20. Make offer. Cash or trade. F. Collingwood, Norwalk, Ohio.

WOULD exchange or purchase surplus watch, watch case, clock, jewelry, jobbing material, findings, oil, tools, etc. In fact anything pertaining to the business. No lot too small, none too large. Make note of this for present and future reference, as this ad. will not appear again. "Watchmaker," 79 Morris St., Springfield, Mass.

WHAT have you to exchange for Apollo piano player, cost \$250. Made by Melville Clark Piano Co., Chicago. Watches or diamonds pref. O. C. Krahmer, jeweler, Galena, Ill.

Q-DAY electric switch clock, Swiss universal lathe, steel verge lathe, Miller's ring gage, Ide's demagnetizer, 2 wood clocks complete, 2 wood movements, new 8-day time movements. Wanted: Slide rest, wheel cutter, escapement model. W. F. Winslow, Winsted, Conn.

FIVE by eight camera to trade. Want typewriter. "L 44," care Keystone.

MOTOR cycle, typewriter and Orient tandem. Wanted: Watches, clocks. 286, Seaford, Del.

\$65 GROCER'S computing scale (new). Want trial case and watch-glass cabinet. W. H. Hines, jeweler West Salem, Ohio.

WILL exchange 10-room Chicago suburban cottage, new, near Metropolitan elevated, cost \$3000, incumbered \$1190, due 1906, warrant deed recorded to date, for jewelry business in good town 3000 pop. "Expert Watchmaker," room 601 Columbus Memorial Bldg., Chicago.

TO trade, hand printing press, type, etc., cost about \$100. KEYSTONES from 1889 to 1902. Want ophthalmometer, or what have you? P. O. box 506, Sioux Falls, S. Dak.

SPECIAL NOTICES.

UNDER THIS HEADING THREE CENTS PER WORD.

IF you want the cash out of your jewelry business right away, without delay, address, H. Lindsey, Iola, Kans.

WANTED no matter what salary you demand, we can secure you a position in any State with reliable firms. Correspondence strictly confidential. Watchmakers' and Jewelers' Employment Agency, Glass Block, Marion, Ind.

SPECIAL NOTICES.

A LIFE scholarship in our college, including diploma and highest degree, for only \$7.50. See our advertisement, page 830, and write for new prospectus. South Bend College of Optics.

ADDRESS of G. W. Stone, boilermaker and machinist. Liberal reward. Ed. J. Nie-wohner, Columbus, Nebr.

FOR 25c. will mail 4 new receipts. If you are not satisfied they are worth dollars to you will cheerfully return your money. J. M. King, 1712 Broadway, Mattoon, Ill.

100 CENTS on the dollar positively guaranteed for your jewelry business if you want to sell. H. Lindsey, Iola, Kans.

THE undersigned will dispose of the stock of gold frames and mountings, gold filled frames and mountings, nickel and aluminum frames, gold filled temples, etc., and all finished lenses, formerly belonging to Mr. M. Scheinman, wholesale optician, Chicago, who has recently retired from the optical business, at below the actual manufacturer's cost. A descriptive list of goods and prices on application. A saving of 33% to 50 per cent. fully guaranteed. Buyers of large quantities, your correspondence solicited. Address, with refs., to Wm. Grossman, 416 South Paulina Street, Chicago, Ill.

MONEY loaned to jewelers. Write for information. The Collateral Loan and Banking Co., 143 Euclid Avenue, Cleveland, Ohio.

52 ADS. for a dollar. One for each week in a year. Ads. that we have used to advantage and they're all ready for the printer. Brassfield, Ness City, Kansas.

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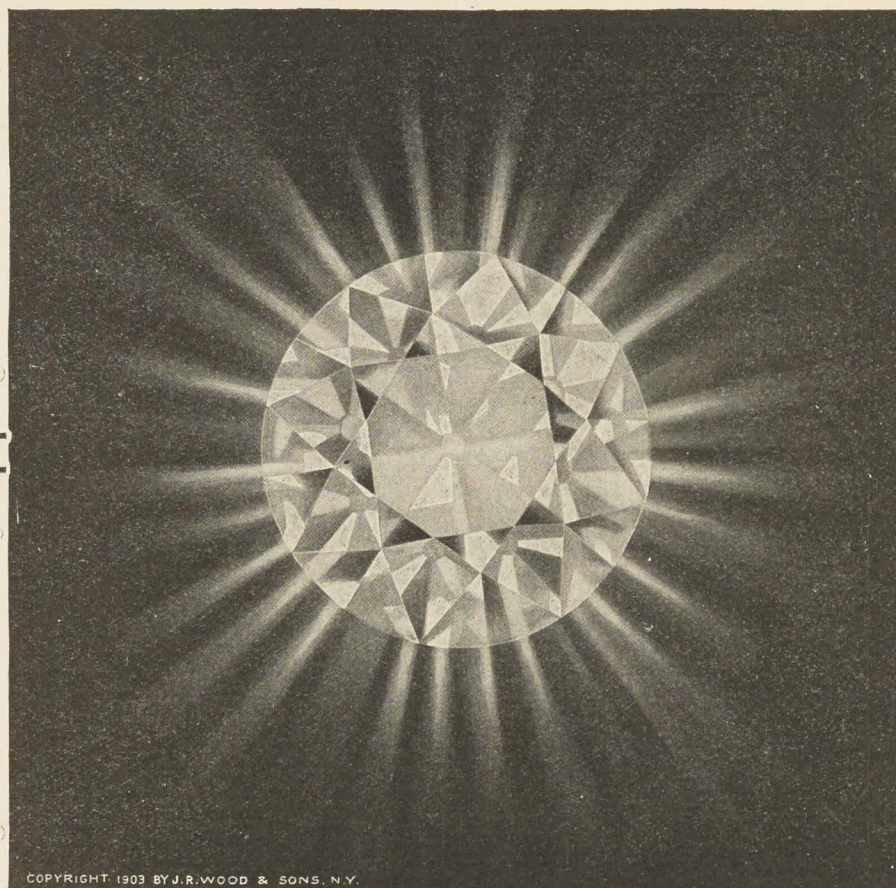
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Index to Advertisers.

| Advertiser | Page |
|---|-------------------------|
| Abbott, Henry | 834 |
| Aikin, Lambert & Co. | 788 |
| Aisenstein & Woronock | 688 |
| Allen & Co., Benj. | 730 |
| American Cuckoo Clock Co. | 758 |
| American Electrical Novelty and Mfg. Co. | 726 |
| American Optical College | 838 |
| American School of Engraving | 772 |
| Averbeck, M. J. | 844 |
| Barnes Co., W. F. & John | 778 |
| Barnhart, Lon | 834 |
| Bartz, Wygant & Brown | 689 |
| Bassett Jewelry Co., The | 766 |
| Bastian Bros. | 776 |
| Bates & Bacon | 770 |
| Bauman Co., Sidney L. & Morris | 738 |
| Bauman-Massa Jewelry Co. | 750 |
| Bausch & Lomb Optical Co. | 796 |
| Bay State Optical Company | 824 |
| Beaumont & Co., D. W. | 788 |
| Bechtel & Co., J. B. | 700, 786 |
| Becken, A. C. | 697 |
| Berge, J. & H. | 847 |
| Bergen Co., The J. D. | 713 |
| Blackmer Co., The A. L. | 715 |
| Blancard & Co. | 784 |
| Bolotin, M. | 844 |
| Bonschur Post Lock, The | 814 |
| Borsch & Co. | 832 |
| Boston Optical Company | 818 |
| Bowman Technical School, The Ezra F. | 786 |
| Bradley Polytechnic Institute | 780 |
| Braxmar Co., The C. G. | 843 |
| Brilliant Gas Lamp Co. | 766 |
| Brown, D. V. | 828 |
| Brown & Dean Company, The | 696 |
| Brown & Burpee | 818 |
| Brunner, Wm. N. | 778 |
| Bryant & Co., M. B. | 689 |
| Buffalo Dental Manufacturing Co. | 692 |
| Bulova Co., J. | 842 |
| Canadian Horological Institute | 847 |
| Carman Art Co. | 842 |
| C.-I. Ophthalmometer | 822 |
| Claffin Optical Co. | 820 |
| Clark Engraving and Printing Co. | 832 |
| Clark & Co., T. B. | 717 |
| Clark & Son, A. N. | 690 |
| Clauer Company, Calvin | 836 |
| Coddling & Heilborn Co. | 776 |
| Cohen, Nickell & Weinman | 778 |
| Craft, W. H. | 843 |
| Craft & Co., A. P. | 702 |
| Crohn, M. | 844 |
| Cross & Beguelin | 698 |
| Crossman & Co., Chas. S. | 847 |
| Crouch & Fitzgerald | 842 |
| Cuny & Company, C. T. | 778 |
| Cushman, W. F. | 814 |
| Damm & Block | 740 |
| Dederick's Sons, James H. | 778 |
| Dee & Company, Thomas J. | 764 |
| Delaware Ophthalmic College, The | 832 |
| Detroit Show Case Co. | 758 |
| Dorflinger & Sons, C. | 715 |
| Dreyer, Emile | 844 |
| Eaton & Glover Company | Inside back cover |
| Egginton Co., The O. F. | 724 |
| Eisenstadt Manufacturing Co. | 760 a |
| Electro-Silicon Co., The | 788 |
| Elgin National Watch Co. | Inside front cover |
| Eliassof Bros. & Co. | 843 |
| Engel & Co., J. | 766 |
| Faneuil Watch Tool Co. | 690 |
| Felix, N. J. | 702 |
| Fine, Horace E. | 842 |
| Fishel, Nessler & Company | 760 d |
| Flye, A. W. | 843 |
| Forsinger, J. W. | 728 |
| Foster & Bro. Co., Theodore W. | 681 |
| Fox Co., The Gustave | 691 |
| Frackman, S. | 758 |
| Freund & Bro., Henry | 744 |
| Freund & Sons, Wm. | 788 |
| Friedlander & Bro., Jos. | 804 |
| Fuller, Geo. H. & Son Co. | 834 |
| Gebhardt Bros. | 843 |
| Geneva Optical Company, Chicago | 794 |
| Geneva Optical Co., Geneva, N. Y. | 816 |
| Globe Optical Company | 806 |
| Gnitchel, Edward E. | 843 |
| Goldsmith Bros. | 685 |
| Gorham Manufacturing Co. | 710 |
| Gotthold, Louis | 847 |
| Green & Co., Max R. | 842 |
| Green & Co., W. | 700 |
| Hagstoz Company, Limited, T. B. | 692 |
| Happich, E. P. | 843 |
| Hardinge Bros. | 692 |
| Hardy, Eben | 832 |
| Hardy & Co., F. A. | 802, 806, 820 |
| Haskell, Fred. A. | 842 |
| Hawkes & Co., T. G. | 724 |
| Hays & Co., W. H. | 742 |
| Heeren Bros. & Co. | 768 |
| Heintz Bros. | 737 |
| Herdson, D. O. | 840 |
| Higgins, J. J. | 792 |
| Hoehn Co., The R. | 824 |
| Hofman Co., John | 760 e |
| Hooper, H. J. | 838 |
| Howard Clock Co., E. | 842 |
| Hurlburt & Sons, H. O. | 760 b |
| International Silver Co. | 704 |
| Jacobson Co., F. H. | 842 |
| Jette, A. | 847 |
| Jewelers' Guild Distributing Co. | 842 |
| Jewelers' School of Engraving | 843 |
| Johnston Optical Co. | 814, 820 |
| Jorgeson & Co., F. C. | 689, 766 |
| Juergens & Andersen Company | 748 |
| Iuzek, Thos. J. & Co. | 844 |
| Kandler, Richard O. | 843 |
| Katz, Philip | 842 |
| Kelley's Oil, Ezra | 780 |
| Kendrick & Davis | 786 |
| Ketcham & McDougall | 760 b |
| Keystone The | 760 d, 834, 838 |
| Keystone Watch Case Co., The | 760 f, 760 g |
| King Optical Co., The Julius | 818 |
| King & Eisele | 739 |
| Kirstein Sons Co., E. | 800 |
| Kleeman & Co., Wm. | 691 |
| Klein School of Optics, The | 832 |
| Klein & Bro., F. C. | 842 |
| Korones Bros. | 692 |
| Krementz & Co. | 752 |
| Kryptok Invisible Bifocals | 812 |
| Landis School of Engraving | 843 |
| Langton, C. A. L. | 832 |
| Lelong & Brother, L. | 703 |
| Levy, Chas. M. | 752 |
| Levytsky, A. | 792 |
| Limeburner Co., The J. E. | 832 |
| Liquid Amber | 702 |
| Lissauer & Company | 683 |
| Littlefield, L. A. | 792 |
| Lovell Clock Co., G. S. | 690 |
| Manasse Co., L. | 820 |
| Manning, Bowman & Company | 716 |
| Manor & McConnell | 840 |
| Marsh & Co., C. A. | 758 |
| Matsumoto, Ikko | 690 |
| Mayer & Co., Geo. | 820 |
| McIntire, Magee & Brown | 810 |
| Meriden Britannia Co. | 720 |
| Merry Optical Company | 826 |
| Meyer Jewelry Company, The | 790 |
| Meyer, Louis J. | 832 |
| Meyrowitz Manufacturing Co. | 798 |
| Miller Jewelry Company | 741 |
| Miller-Knoblock Electric Mfg. Co., The | 689 |
| Moore & Sons, Jno. L. | 828 |
| Murine Eye Remedy Co. | 808 |
| Myers, Harry E. | 838 |
| National College of Optics | 825 |
| National Steel Plate Engraving Company | Inside back cover |
| New England Watch Co. | 760 c |
| New York Buff Company | 842 |
| New York Standard Watch Co. | 743 |
| Non-Retailing Company, The | 683 |
| Northern Illinois College of Ophthalmology and Otology, The | 824 |
| Noterman & Co., Jos. | 770 |
| Nye, Wm. F. | 754 |
| Ohio Cut Glass Company | 717 |
| Olds Motor Works | 696 |
| Oliver Manufacturing Co., The W. W. | 792 |
| Omega Movements | 748 |
| Oneida Community, Limited | 734 |
| Pairpoint Corporation, The | 716 |
| Paul Mfg. Co. | 754 |
| Peters & Co., H. B. | 754 |
| Philadelphia College of Horology | 778, 844 |
| Philadelphia Optical College | 806 |
| Phillips & Co., John | 784 |
| Pitkin, O. H. | 834 |
| Pitkin & Brooks | 714 |
| Pope, P. E. | 841 |
| Potter, William K. | 842 |
| Providence Stock Co. | 782 |
| Queen City Ring Mfg. Co., The | 688 |
| Rees Engraving School | 842 |
| Revell & Co., Alexander H. | 790 |
| Rhode Island Ring Co. | 732 |
| Ricketts Chamois Novelty Co., The | 780 |
| Ringset Company | 752 |
| Robert, Edmond E. | 726 |
| Robert & Co., B. | 844 |
| Rochester School of Optometry | 832 |
| Rockford Silver Plate Co. | 784 |
| Rodenberg-Smith Co. | 756 |
| Rothschild Bros. Co. | 726 |
| Sadler & Co., F. H. | 742 |
| Sandberg, Wilhelm K. | 834 |
| Schlechter, G. A. | 843 |
| Scotfield & De Wyngaert | 742 |
| Scott Mfg. Co., S. C. | 724 |
| Sercomb Company | 702 |
| Sessions Clock Co., The | 703 |
| Sherman, O. | 844 |
| Sickles & Sons, M. | 760 h |
| Sischo & Beard | 786 |
| Sloan & Chace Mfg. Co. | 702 |
| Smith Bros. | 792 |
| Smith & Co., Geo. W. | 744 |
| South Bend College of Optics, The | 830 |
| Spencer Optical Company | 832 |
| Stahl, Jr., Chas. A. | 834 |
| Steiner, Louis | 844 |
| Stein & Ellbogen Company | 732 |
| Stern, M. E. | 818 |
| Stevens & Company | 798 |
| St. Louis Clock and Silver Ware Co. | 701 |
| St. Louis Watchmaking School | 784 |
| Stone J. B. | 842 |
| Sussfeld, Lorsch & Co. | 693, 702 |
| Swartchild & Co. | 686, 691 |
| Swigart, E. & J. | 684 |
| Trenton Watch Co. | 772 |
| Turner, John F. | 841 |
| Tyler, E. R. | 840 |
| Union Show Case Co. | 764 |
| U. S. Electro-Chemical Co. | 788 |
| V. T. F. Watch Glasses | 687 |
| Wadsworth, G. F. | 844 |
| Wallace & Sons Mfg. Co., R. | 718, 719 |
| Waltham Horological School | 754 |
| Warner & Swasey Co., The | 814 |
| W B & C Watch Glasses | 782 |
| Webster-Whitcomb Lathes | 693 |
| Weidlich & Brother, Wm. | 776 |
| Weil & Sons, L. | 703 |
| Weiss Jewelry Mfg. Co. | 746 |
| Wells, Chester | 844 |
| Wendell & Co. | 682, 694, 695, 762, 774 |
| Wheeler & Co., Hayden W. | 708 |
| White & Co., N. H. | 722 |
| Wightman & Hough Co. | 689 |
| Willson & Co., T. A. | 699 |
| Winslow, L. E. | 847 |
| Winter Lumber Company, M. | 700 |
| Witsenhausen, L. | 700 |
| Wood & Sons, J. R. | 848 |
| Wright & Williams | 838 |
| Wright & Co., J. A. | 703 |
| Young & Co., O. W. | 844 |
| Zimmern & Co., Henry | 688 |



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